

UNIVERSAL  
LIBRARY



129 898

UNIVERSAL  
LIBRARY













THE  
NEW IMMORTALITY

by  
J. W. DUNNE



HARPER & BROTHERS PUBLISHERS

*New York and London*

1939



*Printed in the United States of America*

FIRST EDITION

G-O

## CONTENTS

INTRODUCTION by J. B. Priestley	<i>page</i> 9
---------------------------------	---------------

### Part I: The Two 'Nows'

I. MATERIALISM AS A POLICY	11
II. MAKING A MEMORANDUM	18
III. YOURSELF	24
IV. DOUBLE ASPECTS	26
V. ATTENTION	33
VI. THE GROUND WE ARE GOING TO EXPLORE	38
VII. 'EXISTING NOW'	47
VIII. PROOFS FROM OTHER SCIENCES	54
IX. DISCOVERY OF THE 'SELF'	59
X. NO NEED TO 'WAIT AND SEE'	68
XI. THE NEW IMMORTALITY	78
XII. 'BUT . . . ?'	90

### Interlude

XIII. AN INTERLUDE	105
--------------------	-----

# CONTENTS

## Part II: The Greater Quest

XIV. 'TIME-MAPS'	<i>page</i> 111
XV. THE PLACE OF PHYSICAL INSTRUMENTS	127
XVI. 'EXISTENCE' AND 'ESTABLISHED EXISTENCE'	130
XVII. THE UNIVERSAL MIND	137

## Appendixes

(1) THE 'MILLER' RESULTS	149
(2) A NOTE ON 'TELEPATHY'	156

## INTRODUCTION

TOWARDS the end of 1937 I spent several weeks lecturing—or, rather, I spent several weeks in Pullman coaches, from which I emerged to lecture—and I ranged in one direction from New York to Iowa City, and in the other from Battle Creek, Michigan to Tulsa, Oklahoma. If you want to know what I was lecturing about, please consult the later chapters of my *Midnight On The Desert*. I hope you will do this but I will admit that much of what I said in my lectures has been said with more point and brevity in the very first chapter of this book. If you do not feel, after reading this chapter, that here is a strong, original and stimulating mind, the rest of the book is not for you. I regard it as a first-class short statement of what has really been happening in men's minds lately, and it explains a great deal. In fact, it explains about half the principal items in any morning's newspaper.

Two things about my lecture audiences surprised me. The first was the very genuine and keen interest they showed in my necessarily hurried and probably

bewildering account of Time problems and theories. The second surprise was their total ignorance of the work of J. W. Dunne, the boldest, most original and yet most persuasive of Time theorists. It was rather as if they were all excited about Relativity but had never heard of Einstein. Dunne's first book "An Experiment With Time" was first published about twelve years ago, but for some odd reason America, which has a zest for new ideas, has so far missed him. This is all wrong. You Americans can have a grand session with Dunne. If he convinces you, then you may find all your ideas about the universe most radically changed. If he does not convince you, then you can set about refuting him, but you will not find this easy.

Let me tell them at once what manner of man they will have to deal with. Because there is here a new theory of immortality, that does not mean you will be plunged into an orgy of wishful thinking. Put out of your head any notions of vague sloppy cults, of nebulous New Thought, of bogus Orientalism, of Sunset Boulevard Theosophists. Dunne's training was that of a mathematician and an engineer. He was actually one of the pioneers of aviation in England, as his impressive record in *Who's Who* tells us: "Began aeronautical experiments, 1900; invented (1904) the stable, tailless type of aerofoil which goes by his name; built and flew both monoplanes and biplanes of this type; designed and built (1906-7) the first

British military aeroplane. . . ." His recreations are fly-fishing and revolver shooting, both of which, you will notice, demand great accuracy. There is no nonsense about this slight but trimly-built ex-officer, with his friendly but rather dry manner. He is painstaking and thorough almost to a ludicrous degree, and it is this that explains the long intervals between his books, intervals in which he continues his unwearying research. This research is necessary because what began, years ago, as a note on some odd features of dreams has developed into a full-blown philosophy, Serialism, and in order to prove his points the author of it has had to make himself fully acquainted with the latest findings of physics and astro-mathematics.

I repeat, this book is not merely another example of wishful thinking. If Dunne goes wrong, then it is because somewhere his fairly severe dialectic has broken down. He seems to me very much a man who has arrived at certain important conclusions not because he was aiming at them from the first and was determined to reach them no matter what happened to his logic, but because the trail he has followed so carefully has led him to these conclusions. In other words, he did not set out originally to prove our immortality but found the proof of our immortality waiting for him at the end of his road. The fact that he is not a professional philosopher is, to my mind, in his favour. Our professional philosophers seem to me to be lack-

ing both in originality and courage. (There are, of course, some notable exceptions, such as Whitehead.) Several of them have elaborately disposed of Dunne's theory, but oddly enough, Dunne's theory remains in the mind, still alive and kicking, when all these refutations of it are forgotten.

That is not surprising, because behind the author's rather dry manner and elaborate reasoning (simpler here than in the two earlier books) there is the real breath of life. Here is a man who is blazing a new trail for us. You cannot read any three chapters of his without feeling this and without beginning to catch his own excitement. Men urgently need to see themselves and their destiny in a strong new light. The prophets, the saints, the poets, who have told us over and over again again that we are immortal beings, that this life is a kind of symbolic shadow show, that all that matters is the long adventure of the soul, have come to be disbelieved not only because the materialists have recently had most say but also because we stand in need of a new account of these old truths. The ancient prophet does not talk our language. The materialist who sneers at him and explains away all his kind in terms of superstition and the psychology of primitive man, does talk our language. But now comes a man very much of our own time, an engineer, an aeronaut, a mathematician, who talks our language, and, setting out on a very different route from that of

the prophets and poets, ends by showing us that they were right after all. If America fails to appreciate this magnificent adventure, then I do not understand America and must have gone to and fro among its states all blind, deaf and dumb.

And now may I introduce one of the most exciting visitors you have ever had—J. W. Dunne, who has brought with him, right under the nose of the Customs, his *New Immortality*?

J. B. PRIESTLEY





•

## PART I: THE TWO 'NOWS'

•



## CHAPTER I

### MATERIALISM AS A POLICY

Up to about fifty years ago nobody minded admitting that life was a disappointing thing which opened with high hopes and sounding trumpets, moved on to frustration after frustration, and terminated in a disillusioned crawling to the grave. Nobody minded, because everybody supposed that all this was merely the prelude to another life in which they would be promoted to some kind of unimaginable bliss. But, fifty years ago, exponents of popular science began to hammer it into these optimists that the notion of a hereafter in which everything would be put right was utter nonsense. There was, they pointed out, no future life for any of us; and our world, in sober truth, amounted to nothing more than an *execution chamber*—dealing as expeditiously as possible with a continuous procession of new victims. It would be foolish to revile God for this, because there was no God to revile.

## MATERIALISM AS A POLICY

That picture, it seems now, was too grim for the human mind to face fairly and squarely. People in general believed it, but they turned their backs to it.

Then some one arose to point out that gilding the walls of the cell—making the room bright for the next batch of condemned prisoners—would be, in these circumstances, a truly unselfish occupation; and the intelligentsia jumped at this distraction. They concentrated upon decoration; and soon they were all shouting to one another: ‘See what a beautiful place we shall be able to make of it some day.’ *A handsome antechamber to eternal extinction!* That had become the highest hope in which humanity might indulge.

Now, we all know the danger inherent in repressions, in refusing to face unpleasant facts. Freud has shown us the penalties which such moral cowardice exacts. But it does not seem to have occurred to any one that, in the whole history of the human race, there has been no repression which can compare in magnitude with the repression of the last three generations of mankind building walls in their minds against recognition of their own complete futility and their own approaching ends. Those of you who can recall still that bad half-hour when first it dawned upon you that materialism might be true will remem-

## MATERIALISM AS A POLICY

ber that the thing which then was repressed had little in it that was personal or selfish. It was a *rage*—a fury with the universe at the futility of these needless flickerings of human existence. There was anger that could find no sentient object; there was pity that could only torture: and these had to be driven down out of sight, and thrust back whenever they tried to emerge. They were intolerable, and they were repressed into the hidden laboratories of the unconscious mind. The veriest neophyte in psychology could tell us what would happen there. The denied anger would find an object in the claimants of the pity. That, precisely, is what has occurred.

The old-stagers among our materialists have been disturbed very greatly by the discovery that, beneath to-day's flood-tide of almost universal intolerance, there is running, as a more evil undercurrent, a definitely malicious contempt for all human life. They had assumed that the first step towards rendering any man good-tempered and companionable would be to convince him of his own complete insignificance in an entirely senseless world, and to promise him a rapidly approaching end. That the victims of this delightful teaching should, thereafter, start snapping at their fellows like any other lot of trapped animals has puzzled beyond measure these naïvely optimistic sociologists. Many of the latter,

## MATERIALISM AS A POLICY

moreover, being themselves signally unadventurous, had taken it for granted that a creature with only one fleeting life to lose would regard this as too precious to be risked in any conflict, so that the triumph of materialism would herald universal peace. But Man—Nature's arch-rebel—has taken a different line. He is sensible enough to realize that a life which is to be poisoned at every instant by the knowledge that it is a mere scurrying to extinction is a life which cannot be worth any one's preserving. He is consistent enough to perceive that the termination of all human existence in a general holocaust would be a happening of no great moment. As for the notion that such a catastrophe might spell disappointment to some selfish deity—that strikes him as nonsense which, if it were true, would be a matter for hilarity rather than for lamentation. In brief, he is Promethean *Man*—a creature in many ways more to be admired than is any dejected professor mistaking inert acquiescence for dauntless courage.

\*   \*   \*   \*

The foregoing is not written for the old-time scientific materialist—the man who gave uprightly the only verdict which was consistent with the meagre information placed before him by the philosophers, and thereafter lapsed into somnolence. It is a warning addressed to those overworked scribes to whom

## MATERIALISM AS A POLICY

truth *per se* means nothing at all, but who take it for granted that materialism, right or wrong, is to be supported at all costs because it will assist progress and assure peace. It is a suggestion that they should awaken to the facts of the case, and realize that a victory for materialism would end, more likely than not, in the smashing of their decorative schemes by a crowd of war-crazed neurasthenics. Failing that swifter catastrophe, we should be faced, quite certainly, with the cessation of child-breeding by all save the grossly thoughtless; so that the race which would survive would be too degraded to merit any longer the name of *homo sapiens*. In either case, we should find ourselves back, once again, amid the miserable superstitions of a barbaric age.

★   ★   ★   ★

The reader whose patience has carried him through the foregoing pages will expect to be told now, without further preamble, what it is that I am going to maintain. Do I, really, expect him to believe that, while everything else in the universe perishes, Man, the late-comer, is specially exempted from that fate? Certainly not. I am going to indicate something very much bigger than that.

I am going to show that we have, unconsciously, got into the habit of regarding as 'time' something which is not really time at all. It is a hybrid thing



## MATERIALISM AS A POLICY

well known to modern physicists, and it intrudes, causing much perplexity, into every science which relegates research to instruments. It intrudes, equally, into the outlook of every creature that lays claim to self-consciousness. When you recognize this hybrid for what it is, it serves a very useful purpose; but, if you confuse it with the real time of your direct experience (and all of us have been doing that) you will fall into a most amazing error.

In most of the little things of life this confusion is of trivial consequence. That is why philosophers, who should have been our guides, have been fellow victims. But the error which arises when you carry the confusion into questions of greater moment assumes gigantic proportions. It is sufficient to reduce to complete nonsense every discussion which has ever taken place concerning the question of survival. It is sufficient to convert into so much waste paper the greater part of the world's more serious books. I admit that this sounds extravagant; but, when you have read the short remainder of this chapter you will, I suspect, agree that there is nothing to be gained by mincing matters in order to save ancient reputations.

Here are the facts.

(1) If you mistake the hybrid thing of which I am speaking for real time, you will come, inevitably, to

## MATERIALISM AS A POLICY

the conclusion that everything in the universe is transient and rushing to destruction.

(2) In real time the exact contrary is the case. Everything which has established its existence *remains in existence*. A rose which has bloomed once blooms for ever. As for Man, he is not accorded distinctive treatment; he merely remains with the rest.

But, if you wish to appreciate the truth of this unsuspected immortality of everything, and if you would like to grasp what it means to you personally, you will find it necessary, I am afraid, to plod slowly through the remainder of this little book.

## CHAPTER II

### MAKING A MEMORANDUM

I am going to suppose, if you do not mind, that you see before you:

(A) A small piece of wood;

(B) A bootmaker's recording foot-rule (this consists of a scale fitted with two upright blocks: namely, a fixed one against which your heel rests, and a sliding one which the man pushes down until it touches your toe).

You, quite naturally, consider these two objects as being real things in one and the same world. You consider, also, that they exist independently of each other in the limited sense that you can burn the foot-rule without thereby destroying the piece of wood, and vice versa.

Next, I shall suppose that you are using the foot-rule to discover the length of the piece of wood.

Can you remember all that? Perhaps it will sim-

## MAKING A MEMORANDUM

plify matters if I write out for you a memorandum in the following condensed form.

<i>Observed by you, and regarded by you as real things existing independ- ently in one and the same world</i>	A	B
	<i>Piece of wood</i>	<i>Foot-rule, recording what you regard as the length of the piece of wood</i>

You know, of course, that the foot-rule is recording 'the length of the piece of wood'; because you can see both. But suppose that you pay no attention to the piece of wood, look at the foot-rule alone, and tell me, exactly what information that instrument provides.

Its scale, certainly, does not mention 'a piece of wood'. You will agree to that. In fact, the only information which you can gather from an inspection of the instrument alone is that it is recording a *length*.

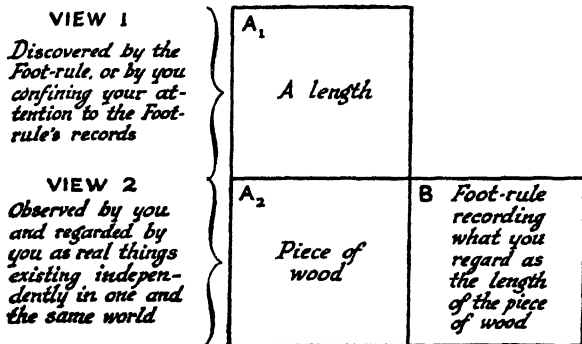
I had better make for you a memorandum of this also. Here it is.

<i>Discovered by the Foot-rule</i>		<i>A length</i>

## MAKING A MEMORANDUM

It is clear now that you can have *two views* of the thing you have entered in compartment *A* above. In your own, more direct view you see it as a *piece of wood*. But if you concentrate attention on your instrument (the foot-rule) alone, and let it do your observing for you, all that you will discover is what the instrument discovers, which is a *length*.

Now, I can join my two memoranda together in a way which will provide you with a single memorandum. This more comprehensive memorandum will remind you of the nature of your two views, and will show you how the lesser view is related to the fuller one. Here it is.



The link between the top row and the bottom row is—but wait a moment. Do you know the meaning of an ‘abstraction’? Well, when you pick out some

## MAKING A MEMORANDUM

property or characteristic or (a better word) 'character' of a thing, such as that thing's shape or size or weight or degree of hardness, the character picked out is called an 'abstraction', and the process of separating it from the thing itself is called 'abstracting'. Now, then: the link between the top and bottom rows of our table becomes apparent when you notice this:

*B* is abstracting *A*<sub>1</sub> from *A*<sub>2</sub>

In the example given, *B* is a foot-rule abstracting length from a piece of wood. If, however, you substitute a spring balance for the foot-rule in *B*, you will get in *A*<sub>1</sub> 'weight'. In other words, the spring balance will be abstracting from the piece of wood that piece of wood's character of 'weight'. The table, obviously, is very far-reaching in its uses.

'Far-reaching' is, indeed, a very mild word. For it is clear that, in every case where you regard two things as real and then employ one of those things as a source of information about the other, that table will apply. In all such cases you must be making for yourself a View 1—of an abstraction—a View 1 which will be additional to the View 2 with which you started. And your *B* (whatever it may be) will be abstracting a character only of the presumed real *A*<sub>2</sub>.

That table of things judged to be real and things

## MAKING A MEMORANDUM

judged to be abstractions must be the key to all modern sciences. For science consists in taking two things presumed to be real (namely an 'objective world',  $A_2$ , and a set of recording instruments,  $B$ ) and noting how  $B$  reacts to  $A_2$ . The scientist discovers in this way a 'world' of abstractions,  $A_1$ .

You will see from that table how absolutely right was Sir Arthur Eddington when he declared that the things or 'entities' of modern science, discovered by exploring instruments, were nothing save groups of abstractions. There were philosophers in the Victorian era who made similar charges against the science of those days, charges which were resented most bitterly. The defenders vanished, in the end, before the devastating onslaught of modern Relativity (though there are still a few wraiths about who do not know that they are dead). Einstein, indeed, went so far as to reduce all physical entities to terms of space and time only. But neither the Victorian philosophers nor Einstein nor Sir Arthur Eddington had the use of the table which is in your possession. Consequently, none of them appreciated, I think, at its full value the fact that, while the world discovered by instruments consists of what are judged to be abstractions, that judgement presupposes that the *instruments* are real. You can imagine the confusion which arises when any one tries to regard the

## MAKING A MEMORANDUM

abstractions and the abstracting instruments as equally unreal or equally real; tries, that is to say, to regard both as in View 1 or both as in View 2. That is the confusion into which modern science fell.

But the science of the use of the key table is still very new—so new, indeed, that you will not find its name in any dictionary.

It is called, 'Serialism'.



## CHAPTER III

### YOURSELF

In your ordinary, everyday speech you give utterance to a number of sentences which a Serialist finds extremely illuminating. You say, for example: 'I saw this', or 'I moved that', or, 'I bought a packet of cigarettes', or 'I tripped over a step', or 'A motor-car nearly ran into me'. Serialism assumes that these sentences are not meaningless to you, so that you must be dividing the world you know into something which you call your 'self' and something which you regard as not your 'self'. It notes, also, that you regard the 'self' as *both affecting and being affected by* the 'not-self'.

That is enough for the Serialist. Out comes the table, and in goes, as a speculation:

# YOURSELF

## VIEW 1

*Discovered by the  
"Self" or by you  
confining your at-  
tention to the "Self"*

$A_1$

?

## VIEW 2

*Observed by you,  
and regarded by  
you as real things  
existing indepen-  
dently in one and  
the same world*

$A_2$

*A world of  
"not-self"*

B

*"Self" exploring  
 $A_2$  and abstract-  
ing therefrom  
an  $A_1$  which is  
.....?*

## CHAPTER IV

### DOUBLE ASPECTS

Science, searching, and philosophy, trying to understand, have been arrested in almost every direction by collisions with things which are worse than merely incomprehensible. They are worse because they are self-contradictory—they possess, apparently, two natures which are absolutely incompatible.

Here, for example, are some of the troubles of science.

(1) The light by which you take a photograph leaves the sun in the form of a ripple spreading in all directions throughout space. It arrives at its destination—your camera plate—in the form of a tiny bullet. Light has, thus, a *dual nature*.

(2) The smallest piece of matter is a group of waves. This can be proved by photographs. It has been spreading slowly throughout space for millions of years, and must be now many miles in diameter.

## DOUBLE ASPECTS

But it has done nothing of the kind. It is a tiny particle and has 'stayed put'. The existence of fossils proves that. Matter has, thus, a *dual nature*.

(3) If your friend's car, going at fifty miles an hour, is travelling in the same direction as your car moving at forty-nine miles an hour, he will, on overtaking, pass you at the relative speed of only one mile an hour; and you could, therefore, step easily from your running-board to his. But if your friend's car is travelling in the opposite direction—rushing to meet you—he will pass you at the relative speed of ninety-nine miles an hour; and an attempt to visit him at that moment would be likely to fail.

Now, when you are being overtaken by a ray of light, it passes you at a certain relative velocity which can be measured. But, if you are rushing to meet that ray, *it does not pass you at a relatively higher speed*. The speed of light in relation to you is always the same, no matter how fast, or in what direction, you are moving.

Einstein's relativity started with the decision to accept this paradoxical behaviour of light as an incomprehensible 'Law of Nature', and going on to see what consequences would follow. The beauty, of course, of accepting a paradox as a 'Law of Nature' is that you are saved the trouble of having to explain it.

It was discovered by Minkowski, and accepted by

## DOUBLE ASPECTS

Einstein, that this paradox could be described more tersely (though still remaining unexplained, if we said that time had a *dual nature*, and was both *true* and *time multiplied by a certain mathematical factor*.

(4) The later experiments of Professor Miller, conducted at the Mount Wilson Observatory, indicate that light has, so to say, been holding another joke up its sleeve. Light *does* acknowledge the fact that you are rushing towards it. It *does* pass you at a relatively slightly faster velocity. But the acknowledgement is very small, far too small to acquit light of the charge of impossible behaviour. Einstein's paradox, the 'dual nature' of time, serves still as the best broad description of the absurd situation; but some little thing has to be added to make it agree completely with the results of experiment. This is extremely troublesome to those who have to convince incredulous students that Einstein's anomaly is sensible.

(Philosophy cannot produce quite so glorious a collection. But it has one very fine specimen of its own).

(5) When certain particles in your brain move in a certain way, a sensation called 'green' comes into existence. But moving particles—little lumps possessing nothing but heaviness—cannot make, by simply moving about, either 'green' or an illusion of 'green'. Sensation has, thus, a *dual nature*.

This last anomaly is styled by philosophers,

## DOUBLE ASPECTS

'Psycho-neural parallelism'. But many of them use a more illuminating term. These speak of the 'Double Aspect' of sensation. That name is intended to suggest that sensation is not really two different things, but one and the same thing regarded mentally from two different points of view. In connection with numbers (1) and (2) of the scientific anomalies I have cited, science has borrowed this expression of the philosophers; and a few physicists, instead of speaking of the *dual natures* of light or of matter, speak of the *double aspects* of these entities.

Now, glance at our table, with its 'View 1' and 'View 2'.

<p style="text-align: center;"><b>VIEW 1</b></p> <p><i>Discovered by the instrument B or by you confining your attention to the instrument's records</i></p>	<div style="border: 1px solid black; padding: 10px;"> <p><b>A<sub>1</sub></b></p> <p><i>A character abstracted from A<sub>2</sub> by B</i></p> </div>	
<p style="text-align: center;"><b>VIEW 2</b></p> <p><i>Regarded by you as realities existing independently in one and the same world</i></p>	<div style="border: 1px solid black; padding: 10px;"> <p><b>A<sub>2</sub></b> <i>Anything that you may be examining with the aid of the recording instrument B</i></p> </div>	<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"><b>B</b></p> <p style="text-align: center;"><i>Instrument recording A<sub>1</sub></i></p> </div>

We can see, at once, that *dual natures* are bound to appear whenever you make the mistake of trying to

## DOUBLE ASPECTS

telescope those two 'Views' into one—whenever, that is to say, you try to regard your  $A_1$  and your  $A_2$  as being one and the same entity.

In point of fact, the main function of the table, up to now, has been to explain away *dual natures* which have been, previously, constructed by such confused thinking—explain them by showing that they are merely *double aspects* due to the two 'Views' which appear in that table.

The most notable success in this direction was the explaining of what Einstein accepted without attempting to explain; namely, the paradoxical behaviour of light.<sup>1</sup> If you will glance back to anomaly number (3) you will see that this paradox boiled down to the statement that 'time' was 'time multiplied by something else', thus giving Time a dual nature. Serialism showed that this dual nature was really a double aspect, *and a direct and inevitable consequence of the two 'Views' explained in the table.*

Serialism was equally successful in showing that the supposed dual natures of light and of matter were, as suspected, double aspects, consequences, again, of the two 'Views' asserted by the table.

Realizing this, you would imagine that the proper method of instructing a science student to-day would be to show him the table at the outset, so that he

<sup>1</sup> *The Serial Universe*

## DOUBLE ASPECTS

could see for himself how dual natures arose and were to be avoided. You would imagine rightly. But think of the trouble in the universities, where students have to be prepared to pass examinations on classical lines.

A great physicist, referring to the clarifying value of the table, discussed the question of whether it would not be simpler, on the whole, for science to dispense altogether with recording instruments. He decided, sadly, in the negative.

'The only practicable course', he wrote, 'is to adapt our concepts to this procedure. The structure of physics is so massive that it is much simpler to stand on our heads than to invert it, and this Mr. Dunne teaches us to do.'

The remaining two of the anomalies I have cited (namely, the Miller 'effect', and Psycho-neural parallelism) become perfectly rational when viewed in the light of the table; but the results in this direction have not yet been published.

Publication is, indeed, Serialism's great difficulty. The notes on the Miller effect have been lying idle for over a year. But the bare elements of this method of analysis are so new and so upsetting to our old ways of thinking that it is impossible to discuss with a novice any specific problem without having given him, first, an explanation of those elementary prin-



## DOUBLE ASPECTS

ciples. That puts lectures completely out of the question; for the preliminary explanation takes, as a rule, a couple of hours. I discovered this when I condensed *The Serial Universe* into two such lectures. It was clear that I ought to have spread it over *six*.

Books, therefore, remain for the moment the only suitable method of presenting new results. This, on the whole, is no great drawback. For Serialism, although it moves slowly, moves on a very wide front. Therein lies its immense strength. A mistake which might elude notice in one science shows up glaringly in the others; and I try never to make a statement until I have checked its accuracy in every field of knowledge with which I am acquainted. It is this cross-checking which occupies the greater part of my time. Now, in any book, I am able to deal with the whole of that broad front, so that the reader, specialist or otherwise, is enabled to follow that cross-checking for himself.

The wide front has another advantage. When the solution of a problem in one science proves difficult, one can, sometimes, discover the clue by tackling the parallel problem (there is always such a parallel) in another science. That, I may advise serialists, is a most useful tip.

## CHAPTER V

### ATTENTION

I hope you will forgive me for what I am going to do henceforward. This has to be a popular book; and it is a fact that there are a great number of people who cannot hold anything *pictorial* in their minds for the space of time it takes them to read through one page and turn to another. For the convenience of these individuals it is advisable, obviously, to give them, on each alternate page of the remainder of Part I., a skeleton sketch of the table—a sketch like this.

VIEW 1	}	A <sub>1</sub>	
VIEW 2		A <sub>2</sub>	B

It is not necessary to repeat that the contents of View 1 are being thought of as abstractions, and the contents of View 2 as realities—such persons have exceptionally good memories for words. Their

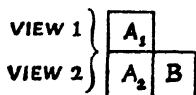
## ATTENTION

trouble is simply the mental strain involved in having to retain in their minds the *form* of the table, the way, that is to say, its compartments are placed with regard to one another.

You must not suppose that the table is of value to science alone. One could, I fancy, write an entire book upon its uses in questions of philosophy. Students of that subject will find it, indeed, a most amusing occupation to fill in the three compartments in various ways, and see how often people confuse an  $A_1$  with an  $A_2$ . But we have no time for that in this book.

It must never be forgotten that the table begins by assuming, as  $A_2$  and  $B$ , *two* things with a common character of reality. It is you, who do not appear in the table, who separate them mentally while assigning to them that common character. You are talking of what a philosopher would call 'two reals which are related'. If he wants to understand how such related 'reals' can exist, I must refer him to you. Their common character of presumed reality is a direct reference to *you*—to whom they are real. Their separation is in *your* world. You, therefore, are an underlying unity which links them.

There is a point more immediately important, and it is one which you will need to bear constantly in mind. It has been mentioned previously, in Chapter



## ATTENTION

II; but that was not the place in which to give it the prominence it merits. There it was explained that, if you wish to obtain the View 1 provided by your instrument, you must deliberately *set aside* your direct knowledge of  $A_2$  and concentrate upon what  $B$  presents to you. This means, of course, that, if you are a philosopher using the table to disentangle logical judgements, you must cease to think of  $A_2$  and concentrate *consideration* upon what  $B$  abstracts. But, if you are dealing with what you regard as objects of direct observation, then, to obtain View 1, you must determinedly withhold from View 2 that form of consideration which is called *attention*. You must concentrate *attention* upon what your  $B$  records.

To discuss direct observation without mentioning the tremendous part played by 'attention' is like trying to describe *Hamlet* without any reference to the Prince. May I give you a few first-hand examples.

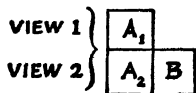
To-day is the 6th of June, and when I had written the paragraph above I laid down my pencil. That entrancingly lovely thing, the Quartet in *Rigoletto*, was coming through from Covent Garden; and I knew that it would be almost impossible for me to divide my attention. Some people could have done it—indeed I had done it myself half an hour before, when I wrote steadily throughout an earlier part of the opera—but the Quartet claims all that I have to

## ATTENTION

give. Now, as I listened, I tried to isolate the silver of Gilda's high notes from the main air. It was difficult; but, by concentrating attention, I achieved my end. When I succeeded, the voices of the other trio blurred into a mere accompaniment. Realizing suddenly that I was losing the best, I let my attention relax; and, instantly, the whole thing flooded through the broken barrier and came to me in its full beauty, as its composer had intended it to come.

You are reading this book, and your focus of *vision* is concentrated upon the visual phenomena connected with the printed letters of the words you are regarding. But your focus of *attention* is on the *meanings* of the words you are reading—meanings which involve contexts outside the focus of vision. Meanwhile, you are observing a whole host of sensory phenomena which are presented for attention, but are not getting it. Did you notice the pressure of this book upon your fingers? You do, now that your attention is directed thereto; but, before, *it was to you almost as if that sensation had no existence*. Yet it was there. If your fingers had suddenly lost all sense of feeling, you would have missed, at once, the sensation to which you were not attending.

Do you appreciate now the immense effect that withholding attention has in dulling the phenomena which attention is denied. There were sounds coming



## ATTENTION

in as you were reading. Did you notice them? Do you remember them?

Voluntary concentration of attention is the most potent of all factors in the formation of memories. Every schoolboy knows that.

May I quote from an earlier book of mine?<sup>1</sup>

‘It is a well-known fact that intensity of bodily feeling depends very largely upon degree of concentration of attention. The soldier in battle often does not know that he has been wounded; you are unaware of toothache when you are running a race; attention to a bad pain will cause a smaller one to vanish.’

Perhaps you knew all this before. If so, I must apologize. The majority of people are completely ignorant of the tremendous potency of attention. And it is essential that they should realize that acute concentration of attention dulls almost to the point of obliteration the contents of the greater part of your field of observation; not by reducing the area of the field, but by rendering those contents *unnoticed*.

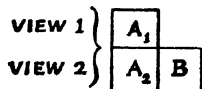
<sup>1</sup> *An Experiment with Time*, 5th edition, p. 205.

## CHAPTER VI

### THE GROUND WE ARE GOING TO EXPLORE

There is a fable that the centipede got along very nicely until some one asked him how he contrived to keep count of so many legs, whereupon he became confused and fell into a ditch. We are like that when we try to think about 'time'. Our language shows that we have a quite remarkable intuitive appreciation of the part that time plays in our many problems. But the moment we ask ourselves what time 'is', we begin to trip and somersault in a manner calculated to excite dismay in all beholders.

None but a neophyte would attempt to start discussion of a temporal problem by trying to give a definition of time. For any description that we give of anything whatsoever has to be given in what are called 'terms' of some kind. That is to say, the description has to make reference to some knowledge which the describer and the listener share in common.



## GROUND WE ARE GOING TO EXPLORE

The business of science and philosophy is to reduce the number of these necessary 'terms' to the smallest possible. Science does this by means of what are known as 'dimensional equations'—an immensely powerful logical process which the majority of philosophers do not even begin to understand (though they are, really, extremely simple). But, looking at the terms employed by physics, psychology, philosophy, and the man in the street, we discover that there are two terms which each party appears to find indispensable. These two are Space and Time. To say that they are indispensable is to say that we have, as yet, no more fundamental terms in which to define them.

That means that our knowledge of these terms is not regarded as having been arrived at by reasoning processes: it is accepted as intuitive. You are deemed to be directly aware of space and directly aware of time in the same way that I am directly aware of those terms. If there were any difference between your intuitive knowledge and mine, we should discover this in the course of two minutes' conversation, if not sooner. It is because no such difference has ever been discovered that we accept them as fundamental terms. They are what are called 'elementary indefinables'.

To demand that a writer on problems which are

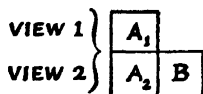


## GROUND WE ARE GOING TO EXPLORE

based upon the acceptance of space and time as elementary indefinables shall begin by defining either term, is to demand that he shall abandon these as terms, discover something more fundamental than either, and proceed to discuss a different problem. 'Order' is, probably, more fundamental than either, but the problem of survival *versus* no survival is a problem involving *time-order*; and 'order' unqualified in this way would be of no use to us.

Now, to say that something is an elementary indefinable is far from saying that it is totally meaningless. Indeed, it is because time and space have, for all of us, meanings that enter into every problem of life that we choose them as terms of description.

For example, if we accept time as a *fundamental* term, then we are regarding 'happening' as having an absolute, irreversible, one-way order which is time order. Moreover, if we accept time as a fundamental term, we may not talk of past 'events' and future 'events' as if they were co-existing with what is happening now. We must not, in fact, speak of past 'events' at all. For an event is the happening of something which, regarded apart from that happening, is not an event. Consider, for example, a particular configuration of stars. If it happens, it becomes an event: otherwise, it remains merely—a configuration. Thus, time, as a fundamental term, does not



## GROUND WE ARE GOING TO EXPLORE

permit you to envisage more than one 'event'—the thing which is happening 'now'.

That is what we all mean intuitively by 'time', and upon that catholicity of agreement depends the value of 'time' as a fundamental term for my use in a description which you will understand.

I shall refer to the time which carries the foregoing meaning as 'real time'.

Some may assert that conception of this single, absolute sequence of real events is contrary to the first principles of Einstein's relativity. But Einstein had no 'first principles'. He began in the middle. If we can link up with Einstein, without departing from the first principles of philosophy and of commonsense, that will be a distinct advance. Do not forget, please, Professor Miller's results.

The meaning we are to attach to 'space' is a far more complex question. The most ill-educated man has a perfectly clear notion of the simple, one-way sequence of events, but is extremely hazy about space. He knows a lot about it, but has never faced and summarized his knowledge. Our best way of ascertaining his views will be to examine his everyday remarks upon this subject. Let us search together. I, if you will not mind, will make a few private notes as we go along.

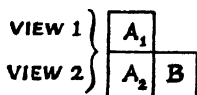
To begin with, the fellow does not talk about

## GROUND WE ARE GOING TO EXPLORE

'space' at all. He speaks of 'here' and of 'distance away'. (N.B.—He is using polar co-ordinates.) Asked what he means by 'distance', he replies, 'It will take me half an hour to get there.' (N.B.—Ha! vectorial space.) He tells us, surprised at our ignorance, 'Of course, it is easier to go down-hill than up-hill.' (N.B.—So he regards space as having structure!) He declares that all things have length, breadth, and height. (N.B.—His space is three-dimensional; but he seems to be changing to Cartesian co-ordinates.) But for 'space' as a whole, space the indefinable, he seems to have no word. Yet, wait, what is this? 'Room!' 'Elbow-room.' '*Room to move about.*' Oh, splendid! splendid! Why! the fellow knows it all!

What a very wonderful thing is this space. It is far richer in characteristics than is any classical 'matter'.

But it is the final definition that pleases me best. I like the notion of space as a *facility* for something. We know, of course, that it is a facility for motion; and that it is a facility for differences in form. But, if we adopt the viewpoint of a psychologist, we can employ one sweeping definition and say that space is a *facility for experience*. We may have to come to that yet. Then we should have to say that time is a *facility for change in experience*—for all changes 'take time'.



## GROUND WE ARE GOING TO EXPLORE

Meanwhile, we will give to time and to space the meanings which are enshrined in popular phraseology, and leave it at that.

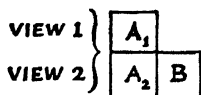
Returning to time, we find ourselves committed to consideration of what we mean by the 'present' or (a less confusing word) the 'now'. To a classical psychologist this is the 'field of presentation', the space in which various phenomena called sense-data, e.g. colours, sounds, smells, tastes, pressures, and the memory records of these things, are offered to observation and open to the movements of attention. In it the phenomena appear, wax, wane, and vanish, leaving memory records behind. But the field remains, and the observer of these changing phenomena remains with it. For how long? That is what we are going to discuss.

I have said that the phenomena wax and wane. That has been ascertained by experiment. It is now a fact of science that no sensory phenomenon is observed unless it has a certain *duration*. Now, the duration necessary for the observation of a phenomenon varies according to a peculiar law. The more intense is the phenomenon, the smaller is the period it needs to persist in order to be observable; or, what comes to the same thing, the smaller the intensity, the longer is the required period. But there is also a shortest serviceable period below which no phenom-

## GROUND WE ARE GOING TO EXPLORE

enon, however intense, can be observed at all. There is a similar minimal intensity. Clearly, then, these phenomena have not only the three ordinary 'dimensions' of length, height, and breadth, they have, in addition, a measure of duration.

Knowledge of sensory qualities like redness or sound (as heard) is said to be 'given'; because it is quite obvious that, if you had never experienced those qualities, you could never *infer* their existence from any other kind of knowledge. It was the repeated hammering-in of this indisputable fact which defeated, finally, those old-time rationalists who believed that reason alone could discover everything. Now, all sensory phenomena have *position* relative to a 'here' and have, also, some measure of *endurance*. These two characters of phenomena are called 'formal', and the rationalists tried hard to make out that these characters are not abstracted but inferred. But, although mathematicians can devise formulae descriptive of different *kinds* of space, all such formulae are based upon a presumed prior knowledge of space in general, and without that preliminary understanding the formulae would convey to nobody the conception of space in particular. Consider, again, the common fallacy that time is something which you infer from watching the lengthening of a train of present memories. You need



## GROUND WE ARE GOING TO EXPLORE

to be aware of time before you can become aware that *the train is longer than it was*.

Again, knowledge of time is no more derived from knowledge of events than knowledge of space is derived from knowledge of marked places in space. Knowledge of time includes the knowledge that the particular events considered are separated by time intervals of varying magnitudes. Without that knowledge we should perceive all events as simultaneous. Without knowledge of space intervals we should perceive everything in space as crushed together into a single point.

Eddington remarks that it is absurd to think of space as the amount of 'nothingness' between two pieces of matter. But who thinks of space—this space so full of character—as 'nothingness'? Not Eddington not Einstein; not I. Then why should we think of a time-interval as empty?

There is at least one other item of knowledge which may be 'given'. I refer to your knowledge of what you call your 'self'. Now, the important thing about that expression is that you speak of this 'self' as 'yours'. You would deny hotly that 'your' self is 'my' self. Therefore, you are aware of an 'I' which owns this 'self' of 'yours'. Now, you do form conceptions, and this 'self' of 'yours' *may* be no more than a conception. But what about this known 'I' which is sup-

## GROUND WE ARE GOING TO EXPLORE

posed to be forming that conception of a 'self'? It is meaningless to speak of a conception as forming a conception. It is a *thinker* who forms a conception. Very well. Since you are, clearly, directly aware of this *thinker* (you say, frequently, this or that is 'my conception'), it may well be that you are, also, directly aware of what you call your 'self'.

## CHAPTER VII

### 'EXISTING NOW'

We have agreed to accept the popular limitation that everything which is real exists *now*. In other words, the 'past' and the 'future', whatever these may be, are not credited with reality. They may be mere conceptions; they may have some sort of metaphysical 'being'; but they have not the particular reality which pertains to that which exists now.

Very well, let us consider some of these given sensory phenomena which come so mysteriously into existence, wax, wane, and vanish. They are real enough while they exist. There is no doubt that they are objective; for you can like them or dislike them, you can form memories of them, and you can direct attention to them or withhold attention from them while they are present. In other words, you observe them.

Let us suppose that you are the only living thing in



## 'EXISTING NOW'

the universe, and that the mechanical conditions are such that, unless you interfere, you are bound to have presented to you a sequence of phenomena of a very simple kind. A light, unchanging in its apparent spatial position, but changing in colour from yellow to red to green, and repeating this sequence over and over again, will serve our purpose. The coloured lights appear for very short intervals, separated by slightly longer intervals of darkness. To give them size, we may say that they take the form of wide haloes. You have been watching them for some ten minutes or so.

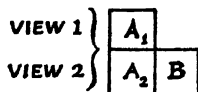
At any moment when the red halo is the object which *you* would declare to be 'existing now', you could give it as your further opinion that:

a yellow halo has just gone out of existence, and is merely remembered;

a green halo has not yet come into existence, and is merely anticipated.

Let us write Y H for yellow halo, R H for red halo, and G H for green halo, and number these 1, 2, and 3 respectively to indicate the time sequence of the three phenomena in question. Let us, further, enclose 2 R H in brackets to show that this is the halo which, according to you, is existing now. At the moment in question, then, the state of affairs which you assert to be true is this:

48



# ‘EXISTING NOW’

1 Y H	(2 R H)	3 G H
Unreal.	Real.	Unreal.
Has existed, but exists no longer.	Exists now.	Will exist, but does not exist yet.

Very well. Wait until a change takes place, and then make a fresh statement. This is what you assert.

1 Y H	2 R H	(3 G H)
Unreal.	Unreal.	Real.
Has existed, but exists no longer.	Has existed, but exists no longer.	Exists now.

So the brackets which, according to you, are supposed to confer reality, have changed from association with 2 R H to association with 3 G H.

‘Quite so,’ you say. ‘The brackets indicate merely that 3 G H is happening now, whereas 1 Y H and 2 R H are no longer happening, and are unreal.’

Very well. Remove your brackets and your written statements with regard to reality, and consider what remains. You have, in both your statements,

1 Y H	2 R H	3 G H
-------	-------	-------

and I ask you this: Is there anything in the natures of a Yellow halo, a Red halo, or a Green halo which can

## 'EXISTING NOW'

make one more 'real' or more 'existing now' than the other two?

You will reply, I imagine, 'Of course not. None of them is shown as existing, so they are all three equally unreal.'

We had best continue by question and answer.

*I.* Good. So the thing which, according to you, confers reality upon any one of the three coloured haloes is something *quite distinct from the haloes themselves*—

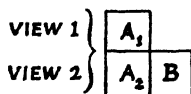
*You.* Wait a minute. Let me get hold of that. There is no reality distinction inherent in the three haloes themselves, so whatever makes one more real than another must be something outside them, something which we have not yet taken into account. Yes. I can see that.

*I.* What is this separate and additional thing which shifts from one unreal halo to another unreal halo, but which enables you to perceive as *real* any one of those three unreal haloes with which it happens to be associated? Is there any conceivable thing which could *make* an unreal thing real?

*You.* No, I suppose that would be nonsense.

*I.* Very well. Do you remember what I said in the last chapter about the 'field' of presentation in which given phenomena appear and disappear—the 'field' which remains throughout the changes—the field which has dimensions like those of space?

50



## ‘EXISTING NOW’

*You.* Yes.

*I.* Did you think of that field as real?

*You.* Well, no. I thought of it as just space or something like that. Not really real, you know.

*I.* But we have got to get reality into the story *somewhere*. You cannot have three unreal haloes and an unreal field travelling from one to the other, and say that this combination makes a reality which you can observe.

*You.* All right. I agree that the field is real.

*I.* But you agreed also that it would be nonsense to talk of a real thing which makes unreal things real.

*You.* Yes.

*I.* Precisely. You cannot make sense of a world which is half real and half unreal. The halo in the field must be as real as the field. We saw, as you remember, that there was no reality difference inherent in the three haloes. So we have a world in which everything that we have been considering is real. That is much simpler. For the field becomes, then, something which provides you with a limited field of view. In that field of view the haloes will become observable to you one after another in succession.

*You.* That, certainly, *seems* to be the explanation.

*I.* And a rational one. For science has been, for a long time now, regarding ‘fields’ as more real than

## ‘EXISTING NOW’

the matter we used to think of as occupying them. But the explanation is not the important thing here. What I have shown you is, that in dealing with sensory phenomena and the fields in which they appear, you must regard either *all* these things as real or say that there is no reality anywhere. And, when you regard all as real, it becomes evident that your supposed ‘now’ was not a ‘now’ at all. It was an abstracted *view*—abstracted by you employing the field.

*You.* You mean that you can put me into the table?

*I.* Not *you*; but I can put in this:

VIEW 1 (mistaken for "now")	A <sub>1</sub> <i>Evanescent intensity A character of the sensory phenomena in A<sub>2</sub></i>	
VIEW 2 (the real "now")	A <sub>2</sub> <i>All sensory phenomena which you, employing the travelling B, have observed, are observing or will observe unless you interfere</i>	B <i>A field, travelling through A<sub>2</sub> and enabling you to abstract intensity from the sensory phenomena in A<sub>2</sub></i>

*You.* I should like, if you do not mind, to read through that argument again.

*I.* Naturally. I agree that this new stuff requires time for assimilation. But when you have finished I shall ask your assent to the following proposition.

### ‘EXISTING NOW’

The same test applies to any series of successive states of any kind of world which is regarded as an independently existing object for observation. One state cannot be *inherently* more real than the others, so their reality is independent of such an additional circumstance as being ‘now’. Thus, the particular reality which, we agree, is conferred by a ‘now’ amounts to no more than reality *from the restricted point of view* of some one employing that ‘now’.

## CHAPTER VIII

### PROOFS FROM OTHER SCIENCES

*You.* This stuff that you have been giving me: is it psychology or physics?

*I.* Psychology. It treats the sensory phenomena as objects for study.

*You.* But I thought psychology was something invented by Freud.

*I.* You are thinking of 'Psycho-analysis'.

*You.* Does that mean: analysis of the sensory phenomena?

*I.* Good Lord, no! Analysis of the sensory phenomena has been going on since the time of Aristotle. Freud is pursuing an entirely different hare.

*You.* Well, *all* this sort of stuff is new to me. I would rather have something more concrete. Where does my *brain* come into this?

*I.* Quite simply. The  $A_1$  in the table is 'Intensity'. Substitute, for that, 'Energy', and——

54

VIEW 1	{	$A_1$	
VIEW 2		$A_2$	B

## PROOFS FROM OTHER SCIENCES

*You.* But 'energy' is not anything concrete.

*I.* You are forgetting that  $A_1$  is not supposed to be anything concrete. It has to be an abstraction.

*You.* Then where does the concrete thing come in?

*I.* In  $A_2$ . It is called in physics, both classical and modern, 'Action'. The classicists regarded it as a merely mathematical quantity; and as no more 'real' than you, at first, supposed some of the contents of your  $A_2$  (the supposedly 'past' and 'future' haloes) to be real. But modern science has changed all that. It is recognized now that 'Action' is the only physical reality and that it is 'energy' which is the abstraction. So, when you decided, in our last conversation, that the sensory phenomena in  $A_2$  were real, you were only, as a psychologist, agreeing with physics.

*You.* But how does my *brain* come into this?

*I.* To get that, we must leave pure physics and call upon the physiologist, the man who deals with brains. We must add a note in  $A_1$  to say that the 'energy' there is 'nervous energy', proceeding in the cortical centres of the brain. Then  $A_2$  becomes the Action from which that energy is abstracted. Now, every physiologist would assure you that no sensory phenomena have ever been discovered to exist apart from that Action. They used to think that it was nervous energy alone which was associated with sensation; but they know now that it is Action. The



## PROOFS FROM OTHER SCIENCES

abstracted nervous energy in  $A_1$  is associated merely with the abstracted 'intensity' of the sensation. So, when you observe a sensory phenomenon, you are observing Action in  $A_2$ .

*You.* But I understood you to say that, when I was using the field as a facility for observation, I was observing only the *intensity* of the phenomenon.

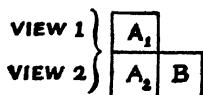
*I.* You cannot concentrate your *focus of attention* so as to pack it into the limits of that field. You can concentrate it *around* that field, but there is bound to remain a considerable fringe overlapping that field. It is with that fringe that you are observing the red halo. The field serves you merely as a centre of the focus—a centre in which you can perceive the degree of intensity of the phenomenon.

*You.* But why do I not perceive the whole of the contents of  $A_2$ , if they are all present in the real now?

*I.* Because your attention is focused about the field; and, so, you notice only a tiny bit of the whole contents of your real view at the real now.

*You.* My 'whole view'! But, wait—where does real time come into all this?

*I.* Time? Real time? Why, View 2, containing all the sensory phenomena, *plus* the field B, is the 'now' in real time. So real time is the time which times the travel of the field B within that now, and times the movements of your attention following that field.



## PROOFS FROM OTHER SCIENCES

*You.* That sounds all right in theory; but can you prove it by any experiment?

*I.* Easily; but I shall have to drag in Relativity.

*You.* Well, go ahead. I have always wanted to understand what Relativity is.

*I.* But this is a *popular* book. Most readers would prefer Relativity left out of it.

*You.* Well, can you not tell them to skip the next bit? *I* want to know.

*I.* Very well. (Other readers! Please skip.) Imagine some observer whose attention, like yours, is following the field as it travels in the great  $A_2$  'now'. Imagine that he has a clock which ticks out the real time which times his travelling. Imagine that he is trying to make a *map* of the world through which the field is passing, using no more information than he can gather from his limited outlook within the travelling field and by counting the seconds ticked out by his clock. His difficulty would be to put in their proper places on the map all the objects which he had encountered and left behind him. You see, he could not know how fast he was travelling until he had discovered what those distances really were. The only thing he could do would be to notice on his clock the *times* at which he passed the various objects, and show those objects as *so many seconds* apart. Now, it was proved in *The Serial Universe* that this distance on

## PROOFS FROM OTHER SCIENCES

the map which is 'so many seconds' would be actually 'so many seconds' of real time *multiplied by the Einstein factor*. Thus, he would draw Einstein's world.

## CHAPTER IX

### DISCOVERY OF THE 'SELF'

*You.* I can follow that Relativity proof after a fashion; but I am not sure now that the readers who skipped were not right. However, everything in science seems to point to the fact that the contents of View 2 are the contents of the real 'now'. Perhaps we had better get back to the sensory phenomena. I ought to be able to see something there for myself. Where is that table? Ah! here

VIEW 1 (mistaken for "now")	$A_1$ <i>Evanescent intensity A character of the sensory pheno- mena in <math>A_2</math></i>	
VIEW 2 (the real "now")	$A_2$ <i>All sensory pheno- mena which you, employing the travelling B, have observed, are ob- serving or will observe unless you interfere</i>	$B$ <i>A field, travelling through <math>A_2</math> and enabling you to abstract intensity from the sensory phenomena in <math>A_2</math></i>

## DISCOVERY OF THE 'SELF'

I notice that you describe the contents of View 2 as 'All sensory phenomena which you, employing the travelling  $B$ , have observed, are observing or will observe unless you interfere'. How can I interfere?

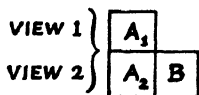
*I.* That demands a little more physics, I am afraid. In the  $A_2$  world (which, in physics, consists, you will remember, of 'Action') there is only one place where 'energy' can be added by you (who do not come into the table) to the nervous energy of your brain (the nervous energy which does come into the table). That place is the false 'now' marked by your travelling field. You will not understand why you can interfere at this place only; but it depends upon the science known as Quantum Theory, and is connected with the wave-particle anomaly (No. 2). The explanation was given in *The Serial Universe*. I warned you that Serialism covers a very wide front.

*You.* All right. I shall take that for granted. What happens when I interfere?

*I.* You alter, instantaneously, the state of the nervous energy which lies ahead of the travelling field. That *may* result in very extensive alterations throughout the forward part of the world through which you are travelling.

*You.* *Instantaneous* alterations of what lies ahead! How can that be?

*I.* I am not talking of that world *as it is mapped out*



## DISCOVERY OF THE 'SELF'

by you. Your map is made from observations taken in the travelling field. That map is *space-like*, inasmuch as the space distances you mark therein are based upon space distances in the field. And the map is, also, *time-like*; because, in it, you show anything which your field happens to have *passed* as being *past* in what you mistake for time. Now, there is Order in that which your field travels over—order in every direction. Your map shows some of this as space-order and some of it as time-order. But the latter order is not time-order.

*You.* What is it, then?

*I.* It is space-order ; but space, as I hinted before, is a peculiar thing, and *this* space-order is not like ordinary space-order. The best way to think of it is to bring in yet another science, and call the order, 'Entropy-order'.

*You.* But what *sort* of order is that? Is it order like the order of pebbles on a beach?

*I.* No. That is space-order. If you stamp on the beach you move the pebbles in every direction radiating from your foot. Entropy is a one-way order. I can give you an analogy.

Imagine a huge cable made of stiff but weightless wires. Imagine that this cable is in a condition which is properly woven at one end and completely unravelled at the other—the unravelled condition in-

## DISCOVERY OF THE 'SELF'

creasing steadily all along its length. Imagine that you are walking beside it from the woven end towards the other, and that you are retwisting a few of the strands.

Behind you lies the part which you have retwisted. Your twisting does not alter that. But it alters completely the lie of the strands ahead of you.

The extent of the unravelling at any part of that cable is analogous to the amount of 'Entropy' at any cross section of the real world through which your field is moving.

If you mistook the length of the cable for time-length, while regarding any cross section thereof as space, then you would say that space is full of particles (cross sections of the wires) which get more and more *disorganized* at each successive instant of time.

It is with entropy-order that you interfere when you add energy to nervous energy at the travelling field.

*You.* I find it difficult to imagine a *weightless* strand of wire.

*I.* Weight need not worry you. There is no mass in the world we are traversing. In that world mass is energy, and is abstractable only at the travelling field.

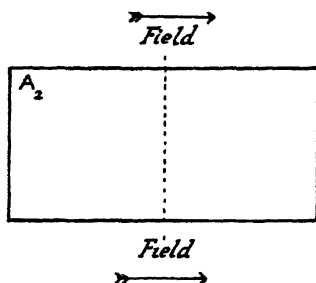
*You.* Look here! Would it matter if I made a picture of this? Otherwise, I cannot hold it in my mind.

## DISCOVERY OF THE 'SELF'

*I.* All right, so long as you bear in mind that such pictures are only memoranda to remind you of where you have got to in your thinking.

*You.* Well, suppose this oblong is the  $A_2$  world my field is traversing, and my field cuts across it where I have drawn the dotted line, and is travelling in the direction of the arrows.

FIG. 1.

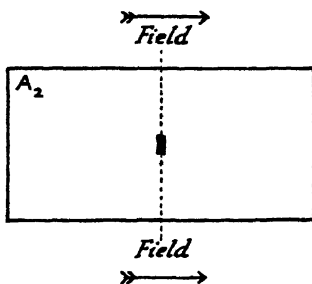


*I.* Yes.

*You.* Where does the nervous energy of my brain come in?

*I.* In the middle of the field, like this dark bit.

FIG. 2.

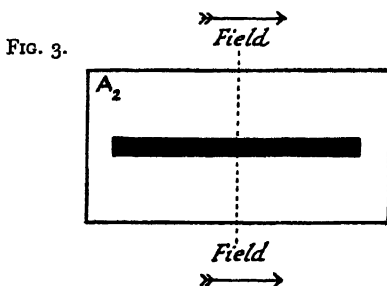




## DISCOVERY OF THE 'SELF'

*You.* And where does this Action from which that energy is abstracted come in?

*I.* Straight across the middle, like this:



*You.* Why straight?

*I.* Because you have, as yet, no way of telling which way you are moving in space. You are on the earth, but that earth is spinning round on its own axis, and circling round the sun into the bargain. The sun is moving towards certain stars, and those stars are travelling heaven knows where. The only starting point you can get for your diagram is your own 'here'.

*You.* Why have you made that black band stop short of the boundaries of my diagram?

*I.* Surely that is obvious. The sideways dimension of your oblong represents, not time, but false-time, that is to say, real time multiplied by the Einstein factor, and——

*You.* Yes, I know, but I cannot follow all that with-

## DISCOVERY OF THE 'SELF'

out stopping to think it over again. Anyhow, why do you call it the 'Einstein' factor? I thought you said it was Minkowski's work.

*I.* Minkowski found it: Einstein used it: I explained it. But so long as you understand that this sideways dimension does not represent either ordinary space or real time, that is all that matters. Well, then, your field is moving; so that, in course of real time, it comes across, first, the place where your brain is in the state you call infancy, and last, the place where it is in a state where nervous energy is converted into forms of energy which do not interest you. Outside those limits there is no such Action as is associated with your private supply of sensory phenomena.

*You.* You mean, in plain words, that there is birth at one end and death at the other, and that these two states bound the extent of my personal view in the real 'now'.

*I.* Precisely, but birth and death in the picture are *states*, not *episodes*. They are there permanently in the real 'now', which contains all the stationary contents of your picture.

*You.* The field is not stationary.

*I.* No, it comes into, crosses, and goes out of the picture. The band I have drawn is called, in Relativity parlance, your 'world line'. Wherever it is, there are sensory phenomena, private to you. Where

## DISCOVERY OF THE 'SELF'

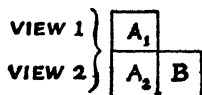
the field happens to intersect that world line, you can discover, in those phenomena, *intensity*, which is energy. Some of these intense phenomena are pleasurable; some, as in the case of pain, are very much the reverse. Your interferences are mainly directed toward the prolongations of sensory phenomena which are pleasurable even when fairly intense, and the avoidance of those in which that degree of intensity is unwelcome.

*You.* I suppose that, if I can interfere to alter what lies ahead of the field, others can do so also.

*I.* Of course, there are millions of living things, great and small, altering entropy by means of the facilities afforded by their various travelling fields. Heaven knows, biologists have reason enough to suspect that.

*You.* 'Various—fields'! Is there more than one field?

*I.* Every observing thing has a travelling field peculiar to itself, and these fields are seldom in exact alinement with those of other observers. Consequently, each draws a slightly different map of the  $A_2$  world through which his field is travelling. In some cases the difference is so great that one observer will regard as 'space' what another regards as 'time' (hence the Relativity word, 'space-time'). Those two, obviously, will disagree about 'causation' or



## DISCOVERY OF THE 'SELF'

'causal sequences'. But they will not disagree about entropy, for that is an order which is part of the physical structure of the  $A_2$  world.

*You.* 'Each has a travelling field peculiar to itself!' Then I have a travelling field peculiar to *myself*?

*I.* Go on.

*You.* Peculiar to myself. Peculiar to my 'self'. Why, then——

*I.* Go on! You have nearly got it!

*You.* Why, then, the place where that field intersects my world line must *be* my 'self'.

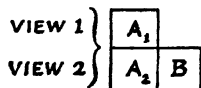
*I.* Yes. You have got it. This 'self' of which you are, at all times, vaguely aware—this 'self' which you cannot visualize mentally, but about which your attention is focused so persistently and so alertly—is not a 'thing' at all. It is a travelling intersection-point. But your statement is vague in one particular. There is no evidence that this field, which is, remember, your psychological 'field of presentation', extends, physically, outside your brain into space. It is your private property. From what you observe therein you *infer* space beyond, and you put that space into the map you draw of the  $A_2$  world. But other observers, as I said before, may disagree with that map of yours.

## CHAPTER X

### NO NEED TO 'WAIT AND SEE'

*You.* I have been trying to count, and I may have got mixed. But, so far as I can make it out, you have brought forward six sciences and a bit of philosophy to testify to the reality of the contents of View 2. I see now what you mean by the 'wide front'. Of course, I cannot pretend to judge the values of the scientific bits; but I think it would have been impossible for you to make the thing even seem to fit into six different sciences, if it had been fundamentally wrong. What convinces me, however, is the philosophical bit about the reality of those haloes not depending upon the thing that travels from one to the other. I can see that that thing must be only a field of view, abstracted from a wider field of view.

Well, what comes next? I suppose you are going to tell me that View 2 is the view I shall get when I die. It sounds interesting, and it is a pity we cannot all get



## NO NEED TO 'WAIT AND SEE'

a glimpse of it before death. That would be, indeed, startling evidence of what seems, theoretically, to be true enough. But, there we are: View 1 is the view we observe; and View 2, containing the  $A_2$  of your table, is merely thought of.

I. In drafting that table you were *observing* in View 1, and thinking of View 2. Now, I am not going to argue that you can observe everything you think of. But, in this case, you have decided that, in View 2, the yellow halo, the red halo, the green halo, and the field  $B$  are all equally present to you in a real 'now', and that the three haloes have the same characters as observable things. Modern physiological science proves experimentally that when you are observing the red halo you are observing Action, which means that you are observing that halo in  $A_2$ , and not in  $A_1$ . In  $A_1$  you are observing only the abstracted *intensity* of the halo. Moreover,  $A_2$  is a real, four-dimensional world; so, if you are a real being, you must be a similarly four-dimensional thing, with a four-dimensional outlook. Clearly, then, you are in the condition of an observer who can *observe* that which is really present to you in  $A_2$ , but who is concentrating attention around the abstracted intensity in  $A_1$  provided for him by  $B$ . Withdraw your attention from what  $B$  provides, and you ought to be able to observe the rest of  $A_2$ .

## NO NEED TO 'WAIT AND SEE'

*You.* What are you talking about? Spiritualism? Religious ecstasy?

*I.* I am simply advising you to try withdrawing your attention from View 1.

*You.* But I cannot do that.

*I.* I can well imagine that you find it difficult. Habit in psychology is a terrifically potent thing; and your attention has been glued to View 1 whenever possible for longer than you can remember.

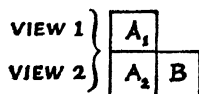
*You.* I do not mean that it is difficult. I mean that it is impossible. Look here! you have a very pretty theory which seems to be logically incontrovertible. I shall not dislike the thought of death in the same way again. Why not leave it at that? I am content to wait and see. Why spoil the whole thing by insisting that I have this view now—before my field reaches the death point? I can see that I ought to have it; but this test of withdrawing my attention from the field so as to get that view is too drastic. Nobody but a mystic can do that, and you are simply ruining your chances of getting your theory accepted.

*I.* But it is quite easy to get that view.

*You.* Have you achieved it?

*I.* Hundreds of times.

*You.* I should like to do so once. There are bits of my past life that I should simply love to go through again. I say! You are not talking about *memory*, are you?



## NO NEED TO 'WAIT AND SEE'

*I.* No.

*You.* I am glad of that. There is nothing real-seeming in memory. What I should like is to see that 'past' really happening again.

*I.* Well, it is not very difficult.

*You.* What is it like?

*I.* Extraordinarily strange. You simply cannot make head or tail of it. Most puzzling. You are like a child in a new world.

*You.* Yes, I can imagine that. And—surely that has been said before. Something about not being able to enter that world except as a 'little child'.

*I.* Well, you see, your focus of attention has been concentrated as closely as possible about  $B$ , observing a tiny fraction of  $A_2$  with a central intensity which is  $A_1$ . When you withdraw it, and transfer it to some scene of your 'past' life—I ought to say 'passed', but you will follow easier if I use the popular word——

*You.* Yes. Go on. What happens?

*I.* You try, naturally, to concentrate there in the same way. But it cannot be done. For View 2 is four-dimensional:  $B$  is three-dimensional. It is like a crack in stained glass. There is no edge elsewhere in View 2 so sharp as that.

*You.* Still, I suppose that attention can concentrate there or thereabouts.

*I.* Yes, and it tries to travel forward steadily in the



## NO NEED TO 'WAIT AND SEE'

same way as it had done before when following *B* over that same stretch. It succeeds after a fashion; but travelling forward at a pace which you have to judge for yourself is a very different matter to following a steadily moving mark like *B*. Imagine a child who has been learning to read by following his nurse's pointing finger, and who finds suddenly that the pointing finger has been removed.

*You.* Yes, but it can learn.

*I.* Yes, and you learn slowly in this case. But can you read this: esac siht ni ylwols nrael uoy dna, sey.

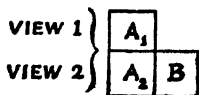
*You.* No. It seems to be something printed backward.

*I.* You read it the right way round a moment ago. But that is analogous to what your 'past' life looks like when your attention moves backward along it.

*You.* Yes, of course.


*I.* Naturally, you do not attempt to make head or tail of that sort of thing. Your attention goes backward in jumps, as your attention now would go backward in jumps if you tried to read backward a line of print in this book. At every word you would pause to take in the forward aspect of that word before going on.

*You.* Yes. It must be puzzling.



## NO NEED TO 'WAIT AND SEE'

*I.* You pause at a scene of yesterday and go on to a scene of last week. To you, those scenes seem to be happening in the *wrong time order*.

*You.* Yes, of course. That would be bound to happen. 

*I.* It is the jumps of attention between concentrations which confuse. You find that you have entered houses without knowing how you got there.

*You.* Oh!

*I.* And your focus is always wider than it is when following the mark *B*. The result is that nothing stays still to be looked at intently. Always you see simultaneously the just before and the just after of the scene you are seeking. That does not matter if you are looking for a scene which was stationary in space when you experienced it before. It is the things which were moving then which seem to be slightly odd in this experience.

*You.* Oh! I am beginning to understand.

*I.* The result of all this puzzlement is that your attention becomes wildly unstable, jumping backwards and forwards over the years. It gets divided.

*You.* Divided?

*I.* Yes, attention is rather like quicksilver. There are many people who can divide it quite well in this life, although they are considered to be uncommon. In the View 2 world, with *B* useless, that division is a

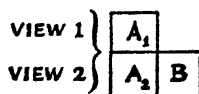
## NO NEED TO 'WAIT AND SEE'

natural consequence of the tremendous instability. As a result you find yourself seeing, at one and the same instant, and apparently fused together, scenes which were years apart when attention was following *B*. You find that new game so fascinating that you give up trying to do anything else. You see, you can *create*. You can make, with these blends, new scenes, and can make these happen in any order you like. You can make new adventures for yourself, new stories and experiences, in which you compensate yourself for all the disappointments of the life you endured while following *B*.

*You.* I know one does that. But one is a very bad hand at this sort of creation. The adventures do not go always the way one desires.

*I.* How can you expect anything else when your attention is being drilled daily to a ritual of concentrated forward progression, and is continually being recalled to *B* by intensities flooding through from that travelling place. Your attention leaves *B* only because *B*, on its journey, has come to a gap where your brain is dormant—a gap where there are no sensory phenomena of any kind. Then you are thrown back upon the wider view you have been neglecting. But the brain is seldom completely dormant; and, at the slightest stirring to wakefulness, View 1 puts in its annoying claims upon attention:

74



## NO NEED TO 'WAIT AND SEE'

discomfort, pain, the worries of waking life. Your attention jumps to the threatened point, and away again as the flow of nervous energy subsides.

*You.* But why is it that, in an unbroken dream, one does not encounter pain? There were plenty of extremely painful episodes in one's past life.

*I.* Because sensory impressions are four-dimensional things; and the greater the width of your focus of attention in the time-like dimension, the less is the intensity of what you observe. Pain exhibits itself within only a very short range of intensities, and you cannot concentrate to the necessary degree anywhere except where *B* gives you the required three-dimensional mark. Even when waking, and using *B*, pain subsides when attention widens.

This absence of the higher intensities, *without absence of apparent reality*, is a most noticeable feature of the four-dimensional world. 'In dreams—the true dreams of unbroken sleep—you are never dazzled by bright suns, deafened by loud noises, irritated by uncomfortable garments, scorched or frozen or fatigued.' But emotions are very greatly accentuated. Pleasure is far more intense than in waking life, and so, for that matter, is displeasure. However, when we get on to the subject of why it is that the adventures we create are sometimes pleasing and sometimes the reverse, we are leaving the province of

## NO NEED TO 'WAIT AND SEE'

Serialism and entering that of the Psycho-analyst and of the Moralist.

Here, however, are a few points of interest.

Intensity is an unabstractable character everywhere except at *B*. That means that its degree in other parts is not a matter of *interest* to the dreamer.

The pleasure which accompanies some of the sensations of waking life is not dependent upon a high degree of intensity. High intensities are always unpleasant. The pleasantness of a sensation depends upon its quality rather than its intensity.

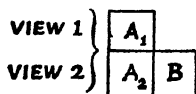
A dream is a controllable thing. You can dream what you please, once you realize that you are dreaming and are the creator.

There is no boredom in dreams. Boredom depends upon dragging 'memory's ever-lengthening chain'. There is memory in dreams, but it is extraordinarily short and evanescent.

The dreams of really deep sleep, those which were earlier than the dreams one recalls first, can be discovered only by practised rememberers. They can be very lovely and intensely satisfying things.

The 'self' of which one is aware in dreams is not the 'self' at *B*. It is the owner of that 'self'—the owner to which you refer when, speaking of *B*, you say, '*my*-self'.

*You.* You were right. There is no need for me to



## NO NEED TO 'WAIT AND SEE'

wait until I encounter death. I have had many glimpses in View 2. But I am not sure that I like what I have seen.

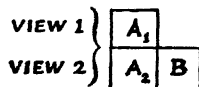
*I.* You have seen the wanderings of a bewildered and rather nervous child. You have built some of his shaky sand-castles. But the possibilities of that world are almost beyond description. Let me give you an illustration.

## CHAPTER XI

### THE NEW IMMORTALITY

(The illustration described in this chapter was given for the first time to an audience of about twelve hundred at the 'Foyle Literary Luncheon' of the 2nd of April 1936. It was repeated to the caste of Mr. Priestley's play, *Time and the Conways*, in 1937, and again to an audience of about fifteen hundred at the National Book Fair in the autumn of the same year. It was televised, with auditory accompaniment, by the B.B.C. on the following December 12th. In each case the music was prefaced by an attempted brief description of the general theory. Of these, the one given at the television appears to be the most suitable for any audience to whom the subject is entirely new. It may help even the present reader, if he feels the need of some mental picture to fix the theory firmly in his mind. I have, therefore, included that bit, although this involves a certain amount of repetition.

78



## THE NEW IMMORTALITY

But the music is the essential thing. It must be *heard* by any one who wants to realize how vast can be the difference between experiencing a simple succession of states in a one-way order and re-experiencing those states, with divided attention, in any order you please. The chances, nowadays, are against the present reader being able to play the piano; but he is fairly certain to know some one who can do this, and he is advised most strongly to take the book to that friend and get the music performed for him—while one or the other reads aloud the lecturer's interspersed remarks.

No rights are claimed by the author with regard to a spoken repetition of this lecture, with played musical accompaniment. All other publication rights, including those of broadcasting and mechanical reproduction, are reserved.)

*Lecturer.* Imagine that all the sensory impressions which you perceive in the course of your life are standing before you in a row—like a long strip of cinema film. On the back of that strip there is another picture, showing the various states of your brain which correspond to the sensory impressions exhibited upon the forward side. You, who are *not* your brain, have a view covering the whole of that array of sensory impressions from beginning to end. You are standing opposite to it, and you see that

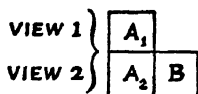


## THE NEW IMMORTALITY

array with all its parts equally present. Your attention can wander to and fro over that view as you please. But, along that array, there travels, with the velocity of light, an entity whom I shall call, 'observer 1'. This entity is the thing which you observe as a private 'self'. If we call the whole array, 'time 1' (although it is, really, only a *pseudo-time*), your 'self' constitutes a travelling 'now-point' in 'time 1'. That point is of very great importance to you; because at that point, and at that point only, physical *energy* can pass between you and the stretch of brain we have mapped out along 'time 1'. At that point, also, the sensory impressions take on momentarily a peculiar acuteness, arousing, in the case of one particular sensation, the experience of pain. But the energy can pass either way, so that you can, at that important point, interfere with the state of your brain and make that organ take action to avoid the things which cause that pain. This would be equivalent, in our present illustration, to cutting the film and substituting a new forward part. For this reason, though you remain stationary, your *attention*, highly concentrated, follows observer 1 and dares not stray elsewhere.

Now, when observer 1 reaches a *blank* place in the film, that is to say, a place where the brain is dormant, he has nothing to convey to you. So you lose

80



## THE NEW IMMORTALITY

your acute sensations. Your focus of attention, consequently, expands and starts wandering in puzzled fashion over the wider view which you have been neglecting. That is the explanation of a 'dream'.

It is a funny business. Your attention has been trained drastically to following the 'time 1' tract in one direction only, and you try to continue doing this in your dreams. But, lacking its accustomed and still sought-for mark—the view provided by observer 1—your attention becomes unstable and divided. The result of this is that you discover yourself to be possessed of a very remarkable new power.

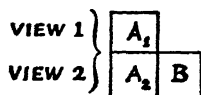
You find that you can blend two or more sensory impressions widely separated in 'time 1' into a single but more complex impression. For example, suppose that, when awake, you see as your attention follows observer 1, a blue dress in a shop window, and that an hour later you see a girl in a stationer's shop. In the following night's dreams, you may see the girl *wearing the blue dress*. The result of this ability to blend, is to equip you with the ability to build, out of what observer 1 would call, 'the past', any scene or any drama which pleases your fancy—build it as something real and happening to you. There is nothing speculative about that statement: the briefest study of your own dreams will show you that you are doing this as hard as you can.

## THE NEW IMMORTALITY

Your dream life has other compensations. Emotions are more intense, and the appreciation of beauty is greatly increased. There is no pain, save when you partially wake, and there is no boredom. Your broader focus of attention saves you from the former: your shorter memory preserves you from the latter.

You continue dreaming until observer 1 at the 'time 1 now' comes again to a place where the brain is in a waking state. Then energy pours through to you once more, *via* observer 1, and your attention flashes back to the vitally important point. The gap may be long or short; but you continue dreaming until it has been traversed. *You* are not travelling through it: you are staying opposite to the 'time 1 past', busy with what you see there. Well, then, suppose that the gap proves to be *endless*. Suppose that observer 1 *never* comes again upon the brain in a waking condition. What is there to interrupt you dreaming? Nothing.

An examination of the essential geometrical diagrams shows nothing which can bring you to an end in *real* time, and nothing which can destroy your view of the whole 'time 1 past' of your sensory experience. Everything that you have ever known is immortal, but you see it in a new light and possessed of new values.



## THE NEW IMMORTALITY

To enable you, however, to appreciate what that means, we need another analogous illustration. Fortunately, there is one ready to our hand.

\*   \*   \*   \*

We need, again, in our new analogy, something to represent the 'time 1' series of sensory phenomena accompanied by their corresponding states of the brain. The fixed keyboard of a piano will serve this purpose admirably. The striking of a note will represent very fairly the focusing of attention at that point, for it is a well-established psychological law that phenomena which are not attended to are not noticed. The key on the extreme left represents the beginning of your 'time 1' life-history; the key on the extreme right stands for the state where the brain ceases finally to function. There should be gaps here and there in the keyboard to represent places where the brain is sleeping, but we shall have to imagine these.

Along that keyboard there travels, from left to right, observer 1 at the 'time 1 now'. You are stationary, but your attention follows observer 1, with the result that you experience a sequence of single events.

(The pianist plays, without emphasis, an ascending chromatic scale, *andante*, starting at about one third of the way from the bottom end of the keyboard, and ending at the top.)

## THE NEW IMMORTALITY

*That* life, certainly, is not worth preserving. Lord Dundreary was perfectly right when he described it as 'just one damned thing after another'.

Now for the dreamer. He has lost, temporarily, his travelling 'now' mark, and is staring at the keyboard. He can direct his attention to any note he pleases, in any order that suits his wishes. But his mind is trained to the waking life; and, when he is confronted with his now vastly greater opportunities, he is little better than a child. His attention flickers wildly. He dreams of the 'time 1 past'——

(The pianist plays single notes with one finger, jumping backwards and forwards over the bass half of the keyboard.)

There is evidence that he dreams of the 'time 1 future'——

(The pianist continues as before but moves to the treble end of the keyboard.)

He constructs blends of increasing complexity——

(The pianist uses both hands and plays discords of first two, and then several notes widely separated.)

In fact, he behaves just like the child that he is.

(The pianist plays discords, *crescendo*, using all the fingers of both hands and finishing up by thumping the keyboard with both fists.)

He is glad to wake up and return to normal life.

## THE NEW IMMORTALITY

(The pianist reverts to the slow, simple chromatic scale, starting from the middle C.)  
and he says that he has had a nightmare.

(The pianist continues the scale for another dozen notes, and then stops.)

But now let us imagine that our friend has lost his 'now' mark for good and all. It has reached the end of the keyboard, and has vanished, so far as he is concerned. The scene now is all 'time 1 past'. His mind is being drilled no longer to the daily ritual of forward progression. He learns to appreciate his four-dimensional view, and to control his flickering attention. He discovers that a chromatic scale effect is not necessarily the best way of regarding his store of impressions. He may, for example, prefer to employ his attention thus:

(The pianist plays, in single notes, the following line from Solveig's Song in *Peer Gynt*, *cantabile*, and not sadly.)



'But', you may say, 'that will not be *real* life! It will be only a dream—a world of illusion!'

My dear sir, the only thing which is real, in the sense of non-subjective, in the entire business is the

## THE NEW IMMORTALITY

'time 1' stretch of brain *plus* sensory phenomena represented by the keyboard of the piano. And the waking experience which arises when you inspect that stretch thus:

(The pianist plays some fifteen notes of the chromatic scale.)

is in *no* way more '*real*' than is the effect which you will perceive when you can do this:

(The pianist plays with both hands the yodelling chorus of 'Solveig's Song'.)

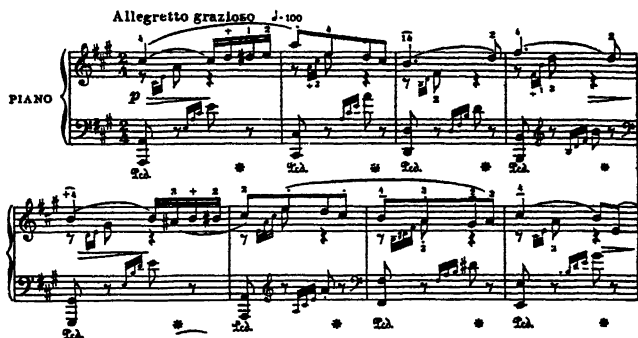


Think of what you can do! The whole range of musical composition lies before you, and this with an instrument the keyboard of which is a lifetime of human experience of every description. Do not fear

## THE NEW IMMORTALITY

or shirk that experience. The more varied it is, the finer becomes your instrument, and the richer the possible effects. There are grace-notes to be produced:

(The pianist plays the opening bars of Mendelssohn's 'Spring Song'.)



There are sombre tones with another value:

(The pianist plays the opening bars of Beethoven's 'Funeral March'.)





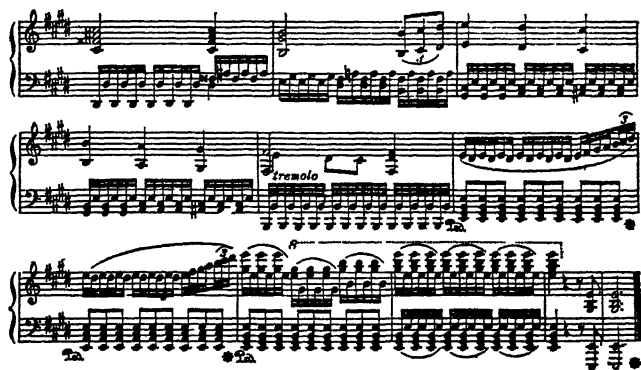
## THE NEW IMMORTALITY

And there are *other* players operating other instruments, giving the possibility of orchestral effects—effects which must increase in complexity and magnificence as *agreement* is reached between more and more performers; until, I am now scientifically certain, the Hand of a Great Conductor will become manifest, and we shall discover that we are taking part in a Symphony of All Creation. The magnitude of your own share does not matter; for, the smaller it may be, the better will you hear the whole. But, to hear that symphony, while playing your own part therein, is Absorption.

(The pianist plays, *fortissimo*, the finale of the 'Pilgrim's Chorus' from the *Tannhäuser Overture*.)



## THE NEW IMMORTALITY



And now, having given you this faint illustration of the greater life, I must return to the Alexandra Palace,

(The pianist reverts to the simple, sad chromatic scale from the middle C, and continues until the speaker ceases.)

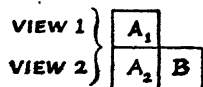
and thank you very much for the patience with which you have listened to this rather lengthy address.

## CHAPTER XII

‘BUT . . . ?’

I have been trying to make a list of the questions and objections which would be likely to arise in the minds of an audience returning home after listening to a lecture like that. The list is a long one, and very varied. The difficulty is to know which inquiry or criticism to answer first; for each reader may regard his own particular perplexity as the proper subject for this chapter, and might be displeased if its discussion were postponed until considerably later in the book. Moreover, when he sees what the succeeding chapters are like, he may decide to read no further; and, in that case, he would fail to discover that his problem had received even consideration. It seems to me, therefore, that it would be advisable to deal extremely briefly, in a single chapter, with as many of those questions as is possible. In so doing, I shall try to avoid speculation. The answers will be

90



‘BUT . . . ?’

based either upon what seems to me to be common sense (with that, of course, others may disagree) or upon something which is coming later in this volume. We will begin with one of the critics.

*Objection.* It is not *real*. It is *not* real. I know dreams, and they are not at all the same sort of thing which I encounter when I wake up.

*Reply.* The next time you see, at a cinema, one of those amusing pictures of athletes repeating, in slow motion, feats which previously they had performed at racing speed, notice how much more real-seeming have become the figures of those men rising inch by inch from the ground. It is the fact that they stay there to be looked at in detail which makes them appear more real. Something of the same effect is what strikes you on awaking from a dream. You return from a view of racing instabilities, due to the instability of your own darting, divided attention; from a view in which change of scene follows directly upon mere change of thought; from a world in which an act of faith will remove mountains; from a world in which nothing that you have known has perished: to a world which stays still to be looked at; to a world in which there is terrific inertia, to be overcome only by violent exercise of force; to a world in which change is a familiar, steady drifting into a non-existent ‘past’. You say, according to your tempera-

‘BUT . . . ?’

ment, ‘Oh damn! Time to get up’, or, ‘Thank goodness! It was only a dream.’ But it is impossible for us to doubt any longer that those two worlds are merely one and the same world viewed from different stand-points.

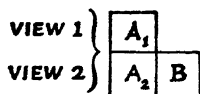
There is another aspect of this question—one that almost invariably is overlooked. When you compare the waking supposed ‘reality’ with the dream, you are comparing present impressions with a mere memory. To get into a position where you can begin to exercise judgement you should compare the memory image of a vivid dream with the memory image of something which you have experienced when awake. Then you may search for differences other than those which I have mentioned above.

*Question.* I had a little son——

*Answer.* Stop! Please stop!

I have no right to lecture to any one on the subject of ethics; but ethics is involved very deeply in this question of reunions; and ethics must come into my reply.

In the world of what we may call the lesser ‘now’ a meeting is a state where the bodies of two people are in close proximity. The attentions of both persons are focused on that instant of pseudo-time, and the communication between mind and mind which is the essence of the meeting follows through the ordinary



‘BUT . . .?’

media of speech or signal. In the greater ‘now’, your attention may revisit such a scene, and you may see again the one you seek. You may hear again the spoken words, you may receive and give the same caresses. But the attention of that other may not be there. In that case, there is no *meeting*.

Moreover, in the world of the greater ‘now’, communication is not by word or gesture, but (as I shall show later) through the medium of a common field of consciousness. Mind communicates direct with mind.

Very well, then: a meeting in that world requires, if it is to last for more than a fleeting instant, mutual desire. But it requires something more than that if you are to savour it in full perfection. That is where the ethics come in.

Bear in mind, please, to begin with, that the one you seek is engaged in his or her world-building, and that the edifice aimed at is fairly certain to differ in many essentials from that which you would plan.

Now, you can be a little *god* in your own little kingdom. You can make everything happen exactly as you please. You can meet again every one you have ever known, at any age you can remember. They will welcome you gladly—if you wish it. They will acknowledge that you had been right, after all, in those little quarrels. But, presently, unless you are

‘BUT . . . ?’

beyond measure foolish, you will realize that this docility does not ring true. It will be a terrible moment when you discover that the words are dictated by you: that the affection is of your own inventing. You will have what you have wanted always in this life—a world wherein every wish is fulfilled. It is a little heaven of private pleasure—and a hell of utter loneliness.

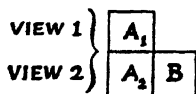
To avoid, or to escape from, that, you must be willing to surrender some of your sovereignty. You must be prepared to build to please others.

Where there is unselfish love there must be, obviously, the required measure of agreement. Then you will meet very fully that other whom you seek. You will encounter once again that difference in outlook and desire which makes that other other than you. You two will *do things together*. Your solo will cease and become part of a duet.

But you may have to assent to a trio—or to a quartet. The orchestra is waiting for you all.

*Question* (by a very truthful questioner). I hate my fellow men. I cannot bring myself to tolerate them. I suppose that it is unnatural—something wrong with my brain. When I revisit the ‘time I past’ of my brain shall I continue to hate?

*Answer.* Not if you hate your hatred, as I think you do. Your mental operations in that world are not the



‘BUT . . . ?’

concomitants of currents of nervous energy in the ‘time 1 past’ of your brain. (The reader will find further information on that point in Chapter XXIII of *An Experiment with Time*.)

We are all, even the best of us, a little malicious. It seems to me to be very necessary that we should face that fact, and not disguise it under high-sounding titles such as ‘righteous indignation’. (How could any impatient thing like indignation be ‘righteous’?) Admit your malice. Look at it. See it, without trappings, for the unlovely thing that it is. Remember that merely to recoil from self is to turn to God.

*Question.* God?

*Answer.* That comes later.

*Question.* But what about those lunatics who hate, and love their hate. It is not their fault.

*Answer.* In so far as that trouble is merely brain trouble, there is nothing to worry about. For, I repeat, the mind that hates and loves, fears and hopes, in the greater ‘now’ is not wholly the product of brain. Moreover, there is one thing which seems to me to be merely common sense. If you will not seek God, God will seek you.

*Question.* How, possibly, can you know that?

*Answer.* It is common sense, as you will see when you have finished the book. God would have to do it, even if only from motives of self-preservation. But I



‘BUT . . . ?’

can put it more bluntly than that. It is what any decent person would do; and, from what we can ascertain about God, He cannot be inferior in such respects to ‘any decent person’.

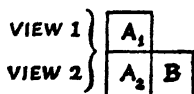
*Question.* Look at me! I am *blind*. What sort of a world will this strange world be for me?

*Answer.* Your answer, also, comes later in the book. But I can give it to you now. You will see as all men see, *when you find God*. The eyes of every creature that lives are at your disposal there.

*Question.* How can any one *prove* that we survive? We *must* wait and see.

*Answer.* That is a very old quibble of the materialist, when he has got the worst of an argument. If the trick escapes your notice, he goes on to add, ‘and, meanwhile, we had better treat the matter as an open question’. From that to, ‘It would be safer to assume that we do *not* survive’, is an easy step for sheep to follow.

You will see the little string of fallacies readily enough if I give you a parallel example. You have pulled your armchair to the fireside, and have crossed the room to your bookshelves. There you hesitate between two volumes. One is heavy, and the other is light. You decide upon the former. Suddenly it occurs to you that you cannot *prove* that the armchair will be there when next you reach the hearth-



‘BUT . . .?’

rug. What are you to do? It would be better to treat the matter as an open question. That being so, it would be wiser to take the light book, so as to have less weight to carry both ways if you found that the armchair had vanished. But, then, since the matter is uncertain, would not the safest course of all be to assume that the armchair will *not* be there—and go to bed?

The initial quibble is one with which no materialist could get away in a court of law; but he gets away with it every time so far as the perplexed general public is concerned. The logical fallacy is in the assumption that it is up to you to prove that the armchair will ‘stay put’. As any judge would tell you, the boot is on the other foot. Continuity is always presumed in logic, it is the man who avers that continuity will be broken who is required to prove his words. The armchair is at the hearthrug. It is presumed in logic that it will remain there. Any one who declares that it will have moved is required to produce his reasons for making such a prophecy. That it *may* move, for reasons unknown, is not accepted as a reply. So it is in the case of survival. You are alive. It is presumed in logic that you will remain alive unless there is evidence that something will happen to bring about a breach of continuity. Up to now the materialist, confining his argument to terms of a *pseudo-*

### ‘BUT . . .?’

time, has been able to produce psycho-neural parallelism (see Chapter IV, page 29) as evidence for the validity of his prophecy. I have destroyed the value of that argument by showing that his alleged ‘time’ is merely a *pseudo*-time. It is his turn to move, and to prove that we die in real time. I could have rested my argument there. The glimpse of an existent past which is afforded us in dreams is an extra argument. The materialist is, so to say, two points down. To recover his position he has to disprove first the evidence provided by the way in which the existence of, and character of, dreams fits in with the general theory. But that is only half his difficulty. Thereafter he would be required to advance some strong new reason for supposing that we die, after all, in real time. It would have to be a strong new reason before we could regard the matter, once again, as ‘an *open* question’. It would have to be very much stronger before we should be justified in saying, ‘It would be wiser to presume that this survival will not happen.’

*Question.* I am tone-deaf. I cannot follow your musical analogy. Have you another illustration for me?

*Answer.* There is none other quite so good; because musical chords represent so perfectly the effect of blending together sensory phenomena which are widely separated in the ‘time 1 stretch’. But, as re-

‘BUT . . . ?’

gards the tremendous power of creation which is latent in the mere ability to re-observe unblended phenomena in any time order you please, there is an illustration which will serve very well.

I have a typewriter. The order in which the letters are arranged is fixed. Let us use that order to represent the ‘time 1 past’ series of sensory phenomena. The striking of a key will represent, as before, the act of attention to a sensory phenomenon.

My little boy found that the easiest way to produce effects with this apparatus was to follow the letters in the simple order in which they are arranged already on the machine. He produced (omitting the numerals) this:

QWERTYUIOP\*ASDFGHJKL:§ZXCVBNM?

.qwertyuiopasdfghjkl; - zxcvbnm

and he seemed very pleased with his result. It did not appear to occur to him that the keys could be struck in any other order—it was, to him, the natural way in which one reads anything, i.e. attends to a row of letters.

I struck a few letters here and there for him, and left the machine to him again. His next effort produced something like this:

Vd?GPKilQWn-L

‘BUT . . . ?’

He did not seem to find that very interesting and returned to

QWERTYUIOP

and so on, which he regarded, clearly, as a far more sensible arrangement.

So does the awakened dreamer.

Now I, learning under instruction, of course, did better than that. With considerable strain on the attention I managed to bring into visible existence that famous sentence:

The brown fox jumps quickly  
over the lazy dog.

The sentence which leaves no key untouched

But, if I handed the instrument to an expert, he could produce without the slightest difficulty that most beautiful and most poignant of sudden outcries:

*Thou wast not born for death, immortal Bird!*

*No hungry generations tread thee down;*

*The voice I hear this passing night was heard*

*In ancient days by emperor and clown:*

*Perhaps the self-same song that found a path*

*Through the sad heart of Ruth, when, sick for home*

*She stood in tears amid the alien corn;*

*The same that oft-times hath*

*Charm'd magic casements, opening on the foam*

*Of perilous seas, in faery lands forlorn.*

‘BUT . . .?’

Do you know how it continues?

*Forlorn! the very word is like a bell*

*To toll me back from thee to my sole self!*

Poor Keats. He was dying of consumption, and he had no hope—no, not one tiny shred—that there lay before him anything save utter and complete extinction.



•

## AN INTERLUDE

•





## CHAPTER XIII

### AN INTERLUDE

You will find that typewriter illustration very serviceable in cases where you are trying to describe to some novice what is meant by the 'new' immortality. It is easily learned by heart. You can extend it, moreover, to illustrate what was meant by the old immortality—QWERTYUIOP\*ASDF *ad infinitum*—and by the old materialism—QWERTY interrupted by, 'That is quite enough from you, my man! Here is your lethal dose.'

I admit, however, that this sort of thing causes one to look back with half a sigh to those queer Victorian days when all was so unbelievably simple. A man could say then, to his partner at the dinner table, 'The Universe, my dear young lady' (they did, really, talk like that), 'consists of matter in motion. Matter consists of little bits called molecules, and molecules consist of little bits called atoms.' And she used to reply, 'Oh! Mr. Jones, how *clever* you are. I

## AN INTERLUDE

can't *think* how you manage to think of things like that.'

Even God was simple then: a Big Boss with a big stick reserved, essentially, for those whom you disliked. It was easy for you to forgive those criminals, as commanded; since you knew that they would catch it pretty hot, anyhow, later on, unless they admitted, grovelling, that you had been right. It was satisfactory to feel that God was just.

But God, thank God! is not 'just'. *Justice is of Man.* God is, to us, what the Seers have seen in Him. He is the Escape from Self. He is Allah the Compassionate, the Merciful. He is the Father Who does not will that one of these little ones shall perish. He is Love. But He is not a distributor of rewards for 'virtues' and of punishments for 'iniquities'.

Can we reach to a God like that by the unemotional pathway of mathematics? Why not? Such a God might well be open to access by any truth-seeking approach.

You need not be alarmed at this mention of 'mathematics'. That form of logic is used twice only throughout the entire argument, and on neither occasion will you find anything to bring you to a standstill.

The first usage I can exhibit to you here and now. Can you do the following little sum?

## AN INTERLUDE

*A motor car is travelling at a speed of 30 yards in 1 second. What length of roadway will it pass over in 3 seconds?*

You can answer that at once—90 yards. Yes, but do you realize how you reached that answer?

You multiplied the speed, 30 (yards per second) by the time, 3 (seconds), and that gave you the length, 90 (yards).

Do you agree? Very well, the mathematics I am going to use first consists merely in repeating that any length travelled over is equal to the speed of travel multiplied by the time during which the travel continues.

You do not mind that? Good! Then, in the next chapter, I shall write  $L$  for length travelled-over,  $C$  for the speed of travel,  $T$  for the time during which the travel continues, and  $\times$  for 'multiplied-by'; and I shall say that

$$L = C \times T$$

The other bit of mathematics is one which you are not expected to follow, or to try to follow. You are asked merely to accept my word for its truth and to go straight on to examine the alleged consequences.

It will be worth your while to struggle through. For there is a very great deal of information compressed into the short remainder of this book.



•

## PART II: THE GREATER QUEST

•



## CHAPTER XIV

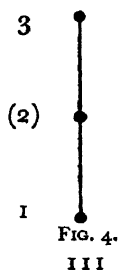
### 'TIME-MAPS'

Consider, please, three successive eclipses of the sun, and represent these by three points numbered with three successive numerals. Set down the numbered points thus:

3 .  
(2) .  
1 .

and enclose 2 in brackets to show that, in the opinion of some 'self', it represents the eclipse which is actually happening. As we know, this self will change from association with 2 to association with 3.

Next, join the three numbered points by a continuous line, thus:





## ‘TIME-MAPS’

This development necessitates a slight alteration in the language of our description. Instead of speaking, as above, of changes in ‘association’, we shall have to say that the self *moves* from eclipse 2 to eclipse 3.

Now, let us ask a classical physicist what is represented by a line like that. He will reply, without hesitation,

‘1, 2 and 3, represent real events in time. The distances between them along the line are pictorial representations of the intervals of time which separate those events. To add a travelling “now” is an illegitimate extension of what is merely an analytical device.’

Let us ask a philosopher. His answer is quite uncompromising. He turns down both the classical physicist and ourselves. He says, ‘You are trying to represent time by space. You have no right to attempt any such thing.’

We contradict both these disputants. We have been claiming that there is a real world, objective to you who do not come into our table, and objective also to your ‘self’. Our subsequent argument was that all states of this real world exist simultaneously. Hence, we hold that the line in Figure 4 represents a real length in that real world—a length moved over by a real ‘self’. It does *not*, therefore, represent time.

## ‘TIME-MAPS’

The dispute is one which can be settled by experiment.

We say to the physicist, ‘Suppose that your instruments were to inform you that a certain object is travelling in ordinary space with a speed which we will call  $C$ . How would you, using your device of a line to represent time intervals, exhibit the change of position of that object during one second?’

In reply, he draws for us the diagram below

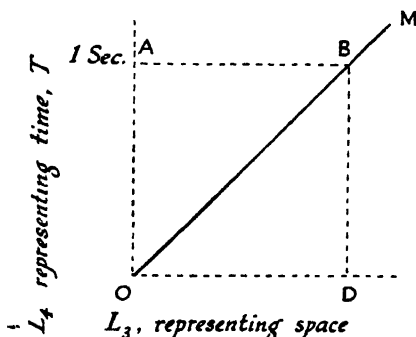


FIG. 5.

and he explains it as follows.

‘The distance measured horizontally from the left upright edge of the diagram to any point in the thick diagonal line  $OM$  represents a space distance travelled by the moving object. The distance measured from the base of the diagram upwards to the same point in the diagonal represents the amount of time taken over the journey. For example, the vertical

## 'TIME-MAPS'

distance from  $D$  to  $B$  represents the time which the object takes in travelling a space distance as long as from  $A$  to  $B$ . We show the measurements of these time-intervals and space distances by scale divisions marked on the left edge and the base of the figure. Thus, the distance from  $D$  to  $B$  is, clearly, the same as that from  $O$  to  $A$ ; and from  $O$  to  $A$  is marked one second on the scale. We say that, starting from the instant and place represented by  $O$ , the object will have travelled a distance equal to that of from  $A$  to  $B$ , when one second has elapsed. I cannot tell you how long is the distance from  $A$  to  $B$ , because I cannot mark off the equal distance along the base with a scale of feet or yards or miles until you tell me how great is the speed you call  $C$ . I may add that the thick line  $OM$  is called the "world-line" of the moving object.'

Examining this diagram, we note that the classical physicist has called his proposed scale of distances along the base, ' $L_3$ , representing space'. His scale of distances along the upward left edge has been named, ' $L_4$ , representing time,  $T$ '. Here, immediately we join issue.

'Your  $L_4$  is wrongly labelled', we declare. 'It does not represent time. It represents a length measurement of the real world. Consequently, your world-line  $OM$  is not a summary of positions in space corre-

## 'TIME-MAPS'

sponding to intervals of time. It represents a solid rod lying stretched out in space.

'That space is being travelled over in the upward direction by a real "field" about which our attentions are focused so closely that  $L_4$  becomes to us a stretch, partly of space which has been passed (by ourselves), and partly of space not yet reached (by ourselves). This produces the pure illusion that the length represented by  $L_4$  is time. It produces, also, the illusion that the bit of  $OM$  which the field happens to intersect is the only bit of  $OM$  which exists. Lend us your picture for a moment and we will insert the necessary corrections.'

Here I must interrupt the discussion for a moment in order to explain to the reader what I mean when I speak, as I am going to speak, of '*apparent*' motion.

'Apparent' motion must not be confused with 'relative' motion. You will see the difference very clearly if you draw an inclined line like this

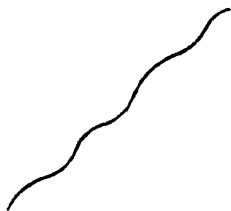


FIG. 6.

## 'TIME-MAPS'

on a piece of paper, lay the upper edge of an envelope horizontally across it, and push that envelope edge straight up the sheet. The *place* where that envelope edge crosses the inclined line will be seen to move along that edge from left to right. But none of the carbon grit of which that line consists is moving horizontally. Similarly, if you hold the envelope edge steady, and slide the sheet of paper with the inclined line downwards beneath the envelope, you will see the same transition, from left to right, of the point of intersection. But no pencil grit is moving that way. Thus, the *relative* vertical motion between envelope edge and paper is real in a sense in which the seen left to right motion is not real, but only *apparent*. For, in the former case, some real thing is really moving; while, in the latter case, it is merely a geometrical abstraction, an intersection 'place', that is changing its position.

Apologizing to the classical physicist or these whisperings between you and I, we return to the attack, borrow his diagram, alter his ' $L_4$ , representing time' to ' $L_4$  representing space', draw a thick line from  $A$  through  $B$  (to represent the travelling field), erase the legend '1 sec' and substitute a small arrow pointing upward. 'That', we say, 'represents our idea of the real world. Time does not appear in that diagram at all.'

## 'TIME-MAPS'

Here is the altered picture

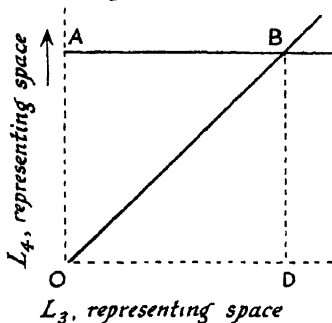


FIG. 7.

He looks at this with an expression of slight distaste, and demands to be told whether we regard it as impossible for him to make a diagram of the real world in terms of time and space. We reply, 'Not if that diagram is going to contain a representation of you.' He disclaims all desire to include himself in any picture that he may draw. 'I want', he says, 'to make a diagram of the world which is external to myself. That world is what I call the "real" world—"The solid world of Nature". I want to map it out in terms of space and time. I assert that I can do this, and that the diagram which you have just spoiled was, in fact, the beginning of such a map.' We ask him if he proposes to make that map from observation; and he replies, 'Of course. I am a physicist.'

'Very well', we say, 'but the map you drew was all

## 'TIME-MAPS'

wrong. It was neither fish nor fowl. As we have altered it, it serves us very well as a picture of the real world—but then it is not a time-map. It is the content of a real “now”. *That* is the country of which you propose to make a map in terms of space and what *we* call “pseudo-time”, and this is how you will have to set to work, if you wish that map to be a reliable guide in your science.

‘You, in our theory, are making observations in the travelling field *AB* (Fig. 7). The country you are mapping out is streaming away behind that field. Suppose, then, that you note within the field some object or state of the external world, and that, one second later, as told by your watch, you note another state. The distance that you have to mark along the  $L_4$  line of your map as separating those two states must depend, obviously, upon the rate at which your field is racing over the country you are inspecting. If it is moving very fast, the distance travelled in one second, which is the distance separating the two states, will be a long one. If the field is going more slowly, the distance will be shorter. In fact, the distance in the real world between the state your field has passed and the state it has just reached one second later will be the distance which the field has been displaced during one second. And that is the only way in which that distance can be shown on your map. If

## 'TIME-MAPS'

the velocity with which your field is travelling is  $C$ , the distance it has been displaced in a time  $T$  is  $C \times T$ . Therefore, the distance from  $O$  to  $A$  on your map, which represents the distance the field has been displaced in one second, should have been drawn, not as a line marked  $L_4$ , representing time,  $T$ , but as an *arrow* extending from  $O$  to  $A$  and labelled  $C \times T$ .'

(Such an arrow, I may explain to the reader, is called a 'vector', and it is used to represent displacements in all diagrams which contain no framing line indicating time-intervals.)

Here is the physicist's proper map so far as we have developed it.

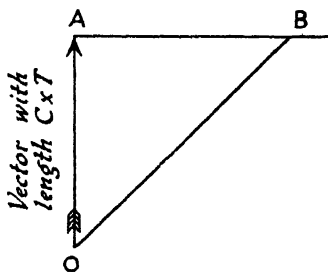


FIG. 8.

He agrees that this procedure would be correct, if our premisses were true; but he denies those premisses. The travelling field, he avers, is all nonsense. 'Moreover', he adds, 'you cannot determine the length of your vector in miles or yards or feet until



## 'TIME-MAPS'

you have discovered how great is this velocity you call  $C$ . The rate of travel of a "now", which is what your  $C$  amounts to, is, obviously, an undiscoverable thing; and I have no use, in my science, for undiscoverable velocities.'

We implore him to have patience, and we continue.

'During the travel of your field from  $O$  to  $A$ , the place where that field intersects the world-line  $OB$  in our Figure 7 will have moved from  $A$  to  $B$ . It will have passed over that distance in the course of one second. Let us suppose, now, that there happens to be, in the country over which your field is travelling, a world-line stretching from  $O$  and intersecting  $AB$  at a point  $B$  the distance of which from  $A$  is equal to the *unknown* distance from  $A$  to  $O$ . This supposition involves, of course, that you cannot show on your map the distance, in miles or yards or feet, between the point  $B$  and the point  $A$ . But it enables us to say that the displacement of the intersection point along  $AB$  in one second would be equal to the displacement of the field  $AB$  from  $O$  to  $A$  in that same second. The displacement of the intersection point along  $AB$  would be, thus, equal to  $C \times T$ . We can show that by another vector. But here we must be careful. The motion of the intersection point is not the motion of anything real. It is only an "apparent" motion. If we were to draw a second arrow like  $OA$  to form a base

## 'TIME-MAPS'

to Fig. 8, and were to label this also  $C \times T$ , then we should be asserting that there are two equally real motions proceeding in the world, the motion of the real field from  $O$  to  $A$  and the motion of a real object from  $A$  to  $B$ . And our whole diagram is based upon our premiss that there is only one real thing moving in the world we are considering—which thing is the field.

But consider now the case of a scientist who is confining his attention to happenings in the field  $AB$  without attempting to make a pictorial representation of time. His diagrams consist of space only, and he treats time as a number of seconds counted while looking at his watch. He would have to show displacements by arrows drawn in his space diagram. The particular displacement in  $AB$  that we are considering is one which he would regard as the displacement of a real object (a section of your world-line  $OB$ ). He would indicate that displacement by a vector labelled  $C \times T$ . But you, making your time-map, ought to regard the real vector  $C \times T$  as being  $OA$ , and should hold that this man's vector  $C \times T$  is merely your vector slewed round and laid along  $AB$ .

Your map, therefore, should show the real displacement (of the field) by the vector  $OA$ , and should show the displacement along  $AB$  (apparent to you

## ‘TIME-MAPS’

but real to this man) as that same vector rotated. This would bring your map to the state of Figure 9.’

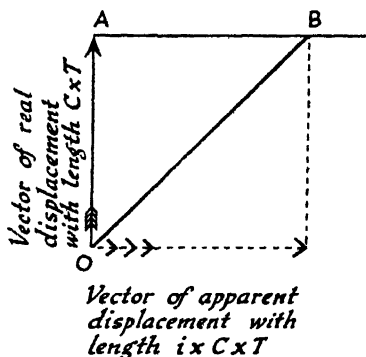


FIG. 9.

I must explain to the present reader that the letter ‘*i*’, which appears as a factor in the length of the horizontal (dotted) vector, is a well-known mathematical symbol indicating merely that the vector in question has been rotated. This was the bit of mathematics which, in Chapter XIII, I said would have to be taken on trust.

The difference between this map, drafted from the travelling field, and the country travelled over (shown in Figure 7) is very curious. The vertical side *OA* in Figure 7 is plain  $L_4$  a space-length. In the map (Fig. 9) that side of the country is shown as  $L_4$  equal to  $C \times T$ , where  $T$  is the time told by the map-maker’s clock. There is nothing odd there. The oddity ap-

### 'TIME-MAPS'

pears in the base line. The length  $L_3$  in Figure 7 (remember that this Figure represents what we regard as the real world) is, again, a plain space-length. But, in the map, this  $L_3$  becomes changed into  $i \times C \times T$ , which is  $i \times L$ . Now, a diagram in which lengths in one direction are equal to  $C \times T$ , while lengths in the other (crossways) direction are equal to  $i \times L$ , yields what is known as 'Minkowski's world'. In that 'world', the velocity  $C$  will play the most extraordinary part, and this may be clearly apparent to any observer employing  $AB$  as ordinary space. That observer, as we have seen, may perceive  $C$  as the velocity of something real in his field. If he does perceive it, he will have no difficulty in identifying it; for the eccentricities of  $C$  are quite unmistakable. Thus, he has only to look about him in his narrow little world, and, with luck, he may discover  $C$ . He does discover it. It is the highest velocity we know, the velocity of light.

Minkowski, of course, did not arrive at his world in the way that we have done. He assumed, to begin with, that motion of an observer would make no difference to that observer's measurements of the relative velocity of light, and thence went on to construct a diagram of the sort of world in which such an anomaly could occur.

But we made no such presuppositions. We started

## 'TIME-MAPS'

with the world of View 2 of our table, the world which includes  $A_2$  and  $B$ , and proceeded to ascertain what sort of a map would need to be made of  $A_2$  by the travelling observer  $B$ . We discovered that his map would show Minkowski's world.

Now, our  $A_2$  is the true view of the real world. But the Minkowski map, which gives the travelling view, is the right map of that world *for the travelling observer B*. It shows that  $B$  what he, travelling, will observe.

But there are three differences between ourselves and the Relativists.

(1) Minkowski regarded his world as a static view of the real world—the world which would be apparent to a four-dimensional observer. We regard it as nothing of the kind. The real world, such as would be perceived by a four-dimensional observer is, in our theory, the world represented by our Figure 7; and Minkowski's 'world' represents merely a map of that real world made by a travelling observer. As such, it must be regarded as a *growing* thing. It contains a 'now' point (he was very proud of this); and all that lies behind that point represents, in our theory, a record of the world the map-maker has passed over. All that lies ahead of his 'now' point represents a logical anticipation of the world which that map-making observer is going to travel over. Thus, that observer must be thought of as in process of transit, and as

## 'TIME-MAPS'

having just arrived at the 'now' point. His transit is timeable by the  $T$  which appears in the vertical vector  $C \times T$ .

That  $T$  is the 'time 2' of *An Experiment with Time* and of *The Serial Universe*.  $C \times T_2$  may be called, and is called in those books, 'time 1'. This length  $CT_2$  or  $T_1$  may be used as a *measure* of 'time 1', in the same way as the space divisions on a watch dial may be used as measures of time provided a pointer is passing over them. But 'time 1' or  $T_1$  is not a representation of  $T_2$ . It is equal to  $C \times T_2$ . It is time for that half-world which is external to the map-maker, and not time for that whole world which includes the map-maker. That time,  $T_2$ , is not represented graphically in any of the diagrams in this book.  $T_1$ , the time pertaining to the half-world apparent to the  $B$  of our table, is merely a pseudo-time.

(2) The second difference between ourselves and the Relativists is this: We both use Minkowski's world; but we reach that world from entirely different starting points. Einstein reached it by presuming that the light paradox was a 'Law of Nature'. He framed that law as a statement that the motion of any observer relative to space, or to aether filling space, must be for ever unobservable. We, with our entirely different starting point, are handicapped by no such presumptions.

## 'TIME-MAPS'

Those two differences enable Serialism to contemplate with equanimity effects such as those which have been discovered by Professor Dayton C. Miller. The reason why must be, I am afraid, relegated to the Appendix. Its understanding demands some knowledge of the Michelson-Morley experiment and of the Fitzgerald-Lorentz contraction.

(3) The third great difference between Relativity theory and Serialism lies in our view of the four-dimensional world  $A_2$ . To us, this is a simple world—the world represented by the area  $L_4 \times L_3$  in Figure 7. That figure is devoid of vectors and contains no scale of time. Time waits, still, to be taken into account.

But our world, like Minkowski's, may prove to be subject to modification by gravitational fields.

# CHAPTER XV

## THE PLACE OF PHYSICAL INSTRUMENTS

Consider, in the  $A_2$  compartment of the table, the following set of world lines. These are being traversed by the field  $B$  (dotted) which is not in  $A_2$ .

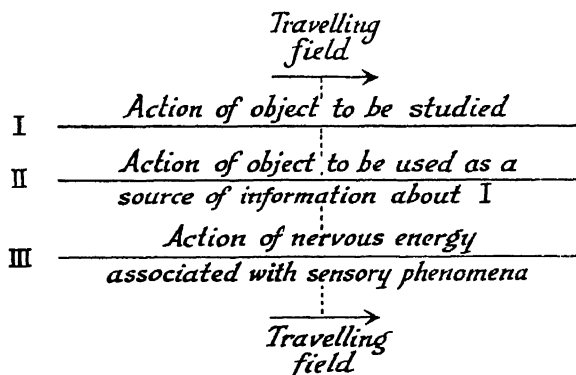


FIG. 10.

From these, the travelling field will abstract, in  $A_1$ , the following points:



## THE PLACE OF PHYSICAL INSTRUMENTS

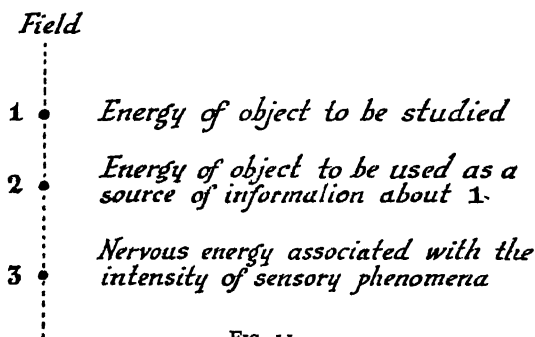


FIG. 11.

All these  $A_1$  points are travelling sectional views of the corresponding  $A_2$  world lines. But, to the student of what is apparent at the field, these points will present themselves as physical objects located at the field, objects which are changing their condition as time goes on. The totality of all such abstracted points constitutes, thus, the world of old-time physics—the world of which Wordsworth appears to have thought so highly. All objects in that world affect each other, directly or indirectly. But this world, remember, is an  $A_1$ .

Now, if you try to employ one or more of these abstracted objects as *a source of information* about what the others are doing, you are trying to take that object out of  $A_1$  and to put it into  $B$ . This operation is, of course, purely mental. You cannot, to begin with, take anything out of the real world  $A_2$  and

## THE PLACE OF PHYSICAL INSTRUMENTS

transfer it to the real field  $B$  which is travelling over that real world. That, however, is not what you try to do. The selected  $A_1$  is not a real thing: it is an abstracted view which becomes a merely apparent object. But then we have to bear in mind that this  $A_1$  is already *relative to* the existing  $B$ —the field. How can you bring together into one world a real thing  $B$  and something which is merely relative to that real thing? Well, that can be done by fairly simple mathematics. But if that mathematical step is omitted, scientific disaster is assured.

## CHAPTER XVI

### 'EXISTENCE' AND 'ESTABLISHED EXISTENCE'

In the penultimate paragraph of Chapter I, I invented and employed a rather vague-seeming expression. I said that everything which had 'established' its existence remained in existence. The verb, actually, was perfectly precise; but the notion of *established* existence is entirely new to philosophy, so that the phrase sounded, I hope, like nothing more than a slight redundancy in diction. I remember congratulating myself upon the practical certainty that it would be accepted as such; for it was impossible to deal with the real meaning of the expression in a chapter which was merely introductory. But the reader who has noticed the references to 'interference' which occur frequently in the later pages may be ready by now to recognize a distinction between those states of the external world which have been

## ‘ESTABLISHED EXISTENCE’

passed by the travelling field and those which are awaiting that ordeal.

We saw, in Chapter VII, that there is no ‘now’ inherent in the successive states of the external world, so that those states which the self at the travelling field regards as ‘future’ are just as real in the sense of ‘existing now’ as are those states which that same restricted individual regards as ‘past’. All are equally present in the real ‘now’ of View 2. But that self can interfere at the place where the travelling field happens to be. In *The Serial Universe* it was shown that the physicist who performs any experiment upon the external world, with the aid of instruments co-opted after the fashion described in our last chapter, is, actually, interfering with that world, and is doing so *via* his travelling self. In the same book, it was shown how Quantum Theory provides the means for such interference, and provides them at the ‘time 1’ ‘now’ only. Thus, an external state which has been passed by the travelling field has added a character to its existence. It has passed the danger point, and its continued existence in real time, or ‘time 2’, is assured.

It is for that reason that I never attach importance to those experiments in dream-prevision which were dealt with so exhaustively in *An Experiment with Time*. That which is vital in the immortality theory is not

## ‘ESTABLISHED EXISTENCE’

the existence of the ‘time 1’ future, but the continued existence of the established ‘time 1’ past.

I should like to take this opportunity of asking readers of, and critics of, *An Experiment with Time*, to pay a little attention to the formulae dealing with the part played by coincidence in determining the resemblance of a dream to a subsequent waking experience. (These are given in the Appendix to all editions after the second). The materialist, when confronted with the accumulated mass of evidence of precognitive dreaming (other than my own contributions) had always been able to say ‘Pooh! Coincidence can account for far more than most people suppose, and these dream resemblances to the future might be, quite easily, coincidences.’ Now, the formulae which I discovered were most surprising—so much so that I had difficulty in crediting them myself when I had completed them. For they showed that the evidential value of any dream resemblance to the future is immensely more valuable than had been supposed.

That brings me back to this little matter of interference. For the Oxford experiments, which constituted a ‘try-out’ with the new coincidence formulae, indicated that the participants dreamed just as much of the future as they did of the past. I had been slightly uncertain as to the outcome of that experi-

## 'ESTABLISHED EXISTENCE'

ment, for this reason: Every interference by the 'self' alters that part of the object world which lies ahead of the self in the  $A_2$  stretch. Consequently, a number of dreams which are really precognitive may have their chances of subsequent verification ruined by the dreamer's interferences after the dream but before the field reaches the state dreamed of. The seeker for statistical evidence of precognition would be, thus, very heavily handicapped. Now, after the results of this particular experiment had been published, a correspondent, whose letter, unfortunately, was mislaid, wrote to me pointing out this same difficulty. In the body of the book I had vouchsafed the opinion that we interfere very seldom. My correspondent maintained, merely as a matter of belief, that we interfere at every moment of our waking lives. I adhere, however, to my opinion: we interfere very seldom; and this for the simple reason that such interference is not needed in the case of a creature so highly developed as is Man.

Interference involves exercising a control over the flow of nervous energy through what is known as a 'sensori-motor arc'. This arc, in its most elementary form, is a looped chain of nerve cells, a loop which starts from a cell in the surface of the skin and which ends in a cell embedded in the muscular system. Stimulation of the skin cell starts a flow of nervous

## ‘ESTABLISHED EXISTENCE’

energy which, passing along the loop, causes some muscle or other to contract—that is half the story of the mechanical behaviour of living bodies. The other half, however, is more remarkable. For some reason, utterly inexplicable except upon the one hypothesis which the materialist loathes: this loop is *broken in the middle*. The gap there is called a ‘synapse’. In the process of finding its way across that gap, with or without assistance, the current lowers permanently the *resistance* of the substance occupying the synapse. Consequently, the next time the skin cell is stimulated, the passage of the nervous current is simple and automatic. A ‘conditioned reflex’, as they call it, has been established.

But, in the case of creatures with a slightly more developed nervous organization, the current need not take the simple, established, shortest pathway across that synapse to the muscle cell. It has a choice of routes; for, starting from and returning to that same synapse, there is another loop. This second loop is broken by a second synapse, more complex than the first. If we compare the route up and down the second loop to a main road leading in and out of a market town (represented by the second synapse), the first synapse may be compared to the by-pass which is followed by the motorist who takes no interest in that town or in its ramification of streets. In

## ‘ESTABLISHED EXISTENCE’

creatures still more highly developed, such as man, there is a third system of loops, extending from the second system and leading, so to say, to the capital of the country. Such is the nervous structure in your body.

Now, if there be interference with the path taken by the nervous current, this must involve making one track more easy to follow than another, and may involve barring or facilitating the passage across some synapse. If that second procedure is possible to the higher animal, it must have been possible to animals in the first stages of nervous evolution. Interference *may* have been necessary then, to get the various sensori-motor arcs established. But, in either case, when evolution is practically complete, and the creature is equipped with a brain capable of performing automatically and effectively every action which may be needed to satisfy that creature's desires, what need is there for further interference? None. Hence, the self at the field has lapsed into a mere provider of the pseudo-‘now’ point to which, through centuries of training, Mind has grown accustomed. It is employed no longer as the passage for that organized energy which the more elementary animal requires for its feeble struggle against entropy; and its owner (not in our table) sits approving placidly the sycophantic activities of that marvel-



## ‘ESTABLISHED EXISTENCE’

lous automaton, the brain. In brief, Man, alas! is developing into something little better than an ant.

It follows that an interference, to-day, must be an act supremely unselfish.

## CHAPTER XVII

### THE UNIVERSAL MIND

**I**n *An Experiment with Time* I opened the argument for Serialism, in Chapter XXI, by considering the classical psychologist's 'field of consciousness', changing that loose expression to 'field of presentation' (see page 32 of the present book). I showed that, if we mapped out in 'time 1' order the contents of that field, we should need to leave the field itself at the selected 'now' at which we started the process of mapping out those contents. I stated, further, that this field represented the observer's '*outlook on space*'. Beyond that I could not go. The Relativity considerations were too complex.

In the 'Replies to Critics' included in the fourth edition of the aforesaid book, I analysed the argument I had employed and showed, incidentally, that it brought to light the following important point:

*'All observers must agree concerning the presence of their own and other persons' three-dimensional selves at 'now's'*

## THE UNIVERSAL MIND

*which travel along Time 1 and which vary in their alignment only to the extent which is permitted by or dictated by the rules of relativity.'*

I must explain now that the world moved over by the travelling field or fields (the world of our present Figure 7) is called, in Serialism, the 'substratum'. As we have seen in this book, all interferences *via* a self alter to some extent the contents of that substratum. Notably, of course, they alter the trend of the interferer's 'world-line', which is the world-line of the nervous energy of his brain. We have seen, also, in Chapter IX of the present book, that the change made in the contents of the substratum must be regarded as an *instantaneous* change in that part of the substratum which lies ahead of the travelling self. I used there the entropy illustration; but actually, the instantaneity of the change can be appreciated more easily by realizing that the 'pseudo-time' in which the world-lines extend has all the characteristics of time (for the external world alone, of course) excepting an inherent 'now'. Those other characteristics include a sequence of apparent cause-and-effect running in the 'time 1' direction. Consequently, while that sequence is broken at the point of interference, it must be considered as restarting from that point and as proceeding throughout the forward part of the substratum. The alteration of one cause-and-

## THE UNIVERSAL MIND

effect sequence for another must be an alteration involving the whole 'time 1' 'future' simultaneously (in time 2).

Very well, Figure 12 shows two selves represented by two points  $L$  and  $M$  on their respective world-lines, travelling in the directions represented by the two arrows.  $L$  has just interfered, and his interference consists in sending to  $M$  a signal travelling with the velocity of light. That is represented by the instantaneous appearance, in the substratum, of the world-line of the light signal, shown as the dotted line  $La$ .

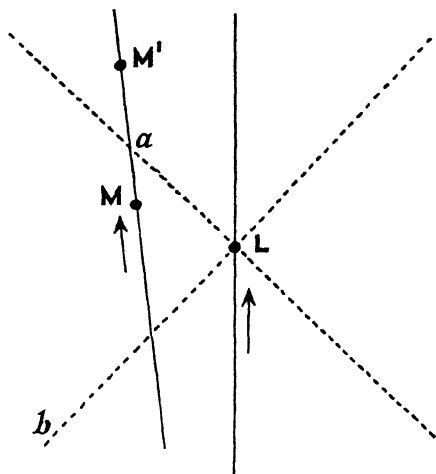


FIG. 12.

It meets  $M$ 's world-line at a point  $a$  ahead of  $M$  and alters the character of  $M$ 's brain at that point. No-

## THE UNIVERSAL MIND

thing anomalous follows.  $M$  proceeds on his way; and presently, in real time, he arrives at the point  $a$ . There he finds the state of his brain changed by the receipt of the message from  $L$ , but the effect to him is merely the same as if that message had just arrived.

But suppose  $M$  had reached the point  $M'$  at the instant, in real time, when  $L$  interfered. The world line of the light, appearing instantaneously, would affect the recipient's brain behind his present position  $M'$ . The change in his brain, effected there, would carry forward instantaneously, with the result that the bit of the world-line between  $a$  and  $M'$  would be altered. In other words, a miracle would occur.

Now, a moment's inspection of the diagram shows us that so long as  $M$  remains within the angle formed by the dotted light-line  $La$  proceeding from  $L$  and the other dotted light-line,  $bL$  proceeding to  $L$ , it will be impossible for either party to interfere with the other's world-line at any point behind that other's present position. All, therefore, will be well. It is easy to arrange a crowd of selves each of which will lie within all the critical angles formed by light-lines proceeding to and from the other selves, and those selves could travel along their appropriate world-lines without departing from the conditions prescribed by the constitution of Minkowski's world as interpreted by Relativity.

## THE UNIVERSAL MIND

But here was the quandary. Each of those selves, travelling along the world-line of its nervous energy, would be an *entity* of some kind—a thing distinct from the world-line. And there would be millions of such separate entities. It would be a quibble to describe each as being a mere intersection point between a travelling field and a world-line, in a case where there would need to be millions of such travelling fields, each being in fact no more than one separate entity's opinion of the direction in which space extended. That problem did not arise for Minkowski; for nothing travelled along his world-lines. Time and space for him, as for Einstein, were frozen solid into a lifeless four-dimensional continuum.

There was no such trouble with regard to the four-dimensional beings who employ the four-dimensional outlook. For Minkowski's world, with all its different 'space' lines and 'time' lines, can be drawn upon a flat sheet of paper. That meant that the four-dimensional creatures could be regarded as stretches marked off in a single, space-like, four-dimensional field of consciousness—stretches marked off by the world lines of, e.g., you and I. Some such universal field of consciousness was necessary to account for the fact that the travelling self continued to follow a particular world-line after the trend of that line had been changed by interference. This I pointed out in *An*

## THE UNIVERSAL MIND

*Experiment with Time.* My mind is so constituted that it refuses to be satisfied with the notion of a 'soul' clinging to a 'body'.

But a soul clinging to a body was precisely what was left so far as the three-dimensional self was concerned—if *Minkowski and Einstein were completely right*. There was no reason, of course, to suppose that either of these two were completely right. The null result of a particular experiment made to discover the earth's motion through the (supposed) aether, was very poor grounds upon which to assert that a similar experiment carried out by, say, a denizen of Mars would produce a similar null result. It was impossible for anyone to get to Mars to test that assumption. The identification of mass with energy (a corollary of the theory) can be derived more simply and directly from Serialism. Moreover, Minkowski's 'world' was, obviously, not the perfectly impartial picture it was asserted to be by its vehement but uneasy sponsors. It was a world drawn by an observer who put himself at the centre of the diagram. That would not matter (it is part of the theory that everyone seems to himself to be at the centre of the universe) were it not that *this observer, acting on that supposition, proceeded to insert in his picture the world-lines of all other observers*. That spoiled the whole thing as an illustration of impartiality. It was a diagram drawn

## THE UNIVERSAL MIND

by a *postulated cosmic super-observer*. The Relativists slurred over this. Finally, Minkowski's world had been reached by Serialism from a starting-point which involved no pre-supposition as to the non-existence of a Cosmic space or a Cosmic time. It was quite possible to have *both* Minkowski's 'world' (as the map made by a single observer and not as a collective effort) and Cosmic space and time. That, however, would involve that the optical experiment in question did not give a completely null result.

The reader can imagine, therefore, the delight with which I hailed the publication of Professor Dayton C. Miller's results, made in the course of 200,000 repetitions of the original optical experiment. Not only were they results which Serialism was peculiarly able to explain; but they gave me precisely what I wanted in order to get rid of my troublesome 'souls clinging to bodies'. I was able to wipe out all those millions of inexplicable entities (additional to the ordinary millions of world-lines) with one sweep of, so to say, the duster, and to exhibit all those selves as merely *places* where the world-lines are intersected by a *single*, travelling, Cosmic 'space'.

That 'space' is the space of the pseudo-'now', and is no more real space than the pseudo-'now' is the real 'now'. It is not the space which appears as  $L_3$  in



## THE UNIVERSAL MIND

Figure 7. In that figure, it is shown as the travelling field. But it is the vectorial  $AB$  which appears in the Minkowski 'map' (Figure 9). It is not the general 'field of consciousness'; for consciousness is four-dimensional. It is in the  $B$  compartment of the table, and is, as we have seen, the means of abstracting energy from action. Therefore, it must have energy characteristics. That last presents no difficulty; since this space is not real space but something which, like 'time 1', has some of the characteristics of the absolute thing without being that absolute thing. If, then, we regard it as a 'field'  $iL$  (*vide* Figure 9), and note that it is travelling with the velocity  $C$ , we can give it energy,  $iLC^2$  (do not trouble about what that means: it is of interest to physicists only). Then, again, since it is in the  $B$  compartment, its relation to  $A_2$  is that of a measuring rod measuring real lengths. It abstracts  $L_3$  from the  $L_4 \times L_3$  area of Figure 7.

The  $L_4 \times L_3$  area, also, is not the general 'field of consciousness'. That consciousness is the Observer of the complete View 2, as you are the observer of that part of View 2 which is limited to the world-line of your own nervous energy. Now, remarks about that Super-Mind must be largely speculative; but we cannot be wrong in attributing to it powers which we have attributed already to you. One of these powers, as we saw in our analysis of what *you* observe in your

## THE UNIVERSAL MIND

little bit of View 2, is the power of dividing attention. You divide yours so that you observe, simultaneously, several points which are widely separated in your world-line. The Super-Mind must be able to divide attention in every direction in its larger field of view.

This gives us all that we need to build our picture without undue speculation. The bit of divided universal attention which is interested in your world-line is *your attention*. The bit which is interested in my world-line is *my attention*. Your mind and my mind are simply marked places in the Super-Mind, marked by the world-lines which determine the pre-sense of sensory phenomena.

We need go no further. We can leave it to the Super-Mind to look after the bits of His own Mind.

But all that I said in Chapter XII leaps into prominence. For attention does not occupy a point: it covers a very wide area with a central focus. Attention focused about your part of the Super-Mind must have a fringe overlapping the attention which is focused about my part of that mind. Since your attention can redivide (i.e., possess several foci), it can concentrate one of those foci upon the point where my attention is focused. And that, of course, is mind-sharing or, as it is called so absurdly, 'telepathy'.

## THE UNIVERSAL MIND

In brief, your attention, radiating and dividing from the centre which is you, can travel through the whole range covered by the Super-Mind. What more do you desire?

•

## APPENDIX

1. THE 'MILLER' RESULTS
  2. A NOTE ON 'TELEPATHY'
-



## THE 'MILLER' RESULTS

Figure 13 is the one-eighth part of an ordinary Minkowski diagram. It shows a light-line  $OK$  and the significant bit of the hyperbola to which that light-line forms the asymptote. It shows, also, the world-lines,  $OB$  and  $OD$ , of two observers whom I shall call, merely for convenience in the matter of frequent reference, and with no intention of being humorous, Jones and Smith. Jones's line is axial: Smith's is inclined.

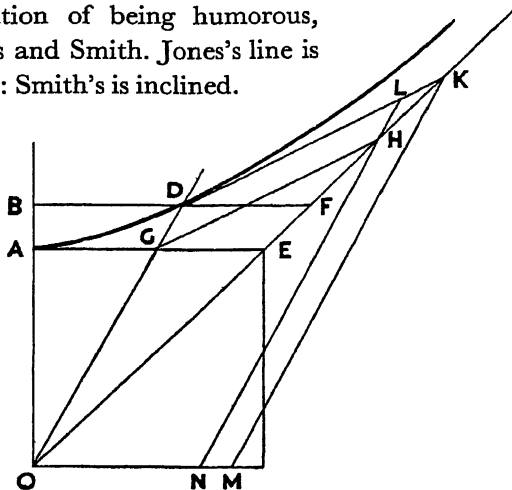


FIG. 13.

## THE 'MILLER' RESULTS

According to Serialism, there is a three-dimensional Jones travelling up  $OB$ , and a three-dimensional Smith travelling up  $OD$ . Each takes his own space axis with him as he moves, and light is perceived by him as the intersection point between that space-axis and the light-line. That point appears to be displaced along the space axis. The time in which that displacement occurs is not 'time 1'—not a distance measured along the observer's world-line—but 'time 2', which is not represented graphically in the diagram. 'Time 2' is time as recorded by his clock. The clock pertains to the observer system, and its world-line would require a fifth dimension for its indication. 'Time 1', measured along the observer's world-line, is that observer's picture of  $CT_2$ . The diagram is a time and space 'map' (*vide* Chapter XIV) in process of construction. The world which is being travelled over as the map grows is not shown in the diagram, but is an isotropic four-dimensional continuum.

Now, the construction of each observer's time-map shows him as travelling one unit of *his* 'time 1' =  $C[T_2]$  in one unit  $[T_2]$  of *his* 'time 2'. He has no displacement along what he shows as space. One of his 'time 1' units, measured, of course, along his world-line, brings him to the place where that world-line intersects the hyperbola. This is a unit interval from  $O$ . Hence, each observer travels one *interval* in one unit of *his*

## THE 'MILLER' RESULTS

'time 2'. Consequently, if Smith is at *D* and Jones is at *A*, both will agree that one second of 'time 2' has elapsed. Smith, therefore, will agree that light has travelled one of his space units in one of Jones's 'time 2' seconds.

The ordinary Relativity result will occur.

But now let us suppose that Einstein's initial postulate was wrong (it was a leap in the dark) and that there is a Cosmic space and a Cosmic 'time 2', *common to all observers*. The Relativist would have to abandon the Minkowski diagram in its entirety. But Serialism has arrived at that map from a totally different starting-point—a point at which not even the Michelson-Morley experiment had been taken into account. We, therefore, as Serialists, are bound to stick to that map, while considering it from the standpoint of an imagined Cosmic observer employing the Cosmic space and the Cosmic 'time 2'. We can, conveniently, place him at *A* and give him Jones's co-ordinate system.

At first sight it would appear that nothing has been changed. Smith will still regard *OD* as his 'time 1' direction and he will use still the same *shaped* mesh system for his 'time 1' and space units. His equation, which is Serialism's equation

$$C^2 T_2^2 - X^2 = 1$$

$$\text{or,} \quad T_1^2 - X^2 = 1$$

ensures this. But . . .



## THE 'MILLER' RESULTS

If the Cosmic observer has reached  $A$  in one second of the common-to-all 'time 2', then  $AE$  is the position of the Cosmic space in which Smith must lie. Smith, therefore, is at  $G$ . His Serial equation compels him to draw an hyperbola passing through  $G$ . He draws it, of course, in smaller units of space and 'time 1'.  $GH$ , the projection of  $GE$ , is his smaller space unit; and  $OG$  is the correspondingly smaller 'time 1' unit. *But his seconds of 'time 2' (not shown in the diagram) have not been correspondingly reduced.* They are the common-to-all seconds of 'time 2': they are the same as those of the Cosmic observer at  $A$ ; and those are the seconds in which, as Smith agreed, *he had moved, previously, to  $D$ .* Thus, although,  $\frac{GH}{OG} = \frac{DK}{OD}$ , light, as observed by Smith, has travelled only a distance  $GH$  in one second of 'time 2' instead of the previous distance  $DK$  in that *same* second of 'time 2'.

If we draw  $HL$  parallel to  $OD$ , the difference in the observed displacement in a second of clock-time (time 2) is  $LK$ .

$LK$  looks remarkably large; but that, of course, is merely because I have credited Mr. Smith with a remarkably large velocity—about half that of light.

Inspection of the diagram shows that the Fitz-Gerald-Lorentz contraction is very far from being lost.  $A$  Smith who is one unit long in his own mesh

## THE 'MILLER' RESULTS

system is now *ON* instead of being, as before, *OM*. He has contracted far more than is sanctioned by the old interpretation of the Lorentz transformation equations.

I realized something of the horror with which Miller's dogged work must have been watched by the Relativists, when I saw the Lorentz equations rocking on their pedestals. What would happen to the de Broglie waves? Worse, far worse, what would happen to electromagnetic theory?

Have those equations been destroyed? Perish the thought.

In Serialism, a velocity in terms of 'time 1' is called 'velocity 1'. It is merely a numeric, and has no dimensions. Now, a glance at the figure shows that the introduction of a Cosmic observer makes no difference to the 'velocity 1' of light in Smith's frame, for  $\frac{GH}{OG} = \frac{DK}{OD}$ . But 'velocity 1' is the velocity to which the Lorentz equations refer. Thus, Serialism enables those equations to achieve an apotheosis impossible without its assistance; since, within their limited scope, they can stand up to even a Cosmic space and time, and have nothing to fear from anything that Professor Miller can produce. Nor can it be said that 'velocity 1' is of no importance; for, in Serialism as in classical science, 'velocity 1' is velocity in the external

## THE 'MILLER' RESULTS

world. But 'velocity 1' in Serialism is never the velocity *observed* by the instruments at the travelling field. That velocity, in the present case, may be either *GH* or *DK* per second of 'time 2', according as to whether we do or do not introduce a Cosmic space and time.

In this matter, Serialism is largely, though not entirely, indifferent. Its argument for immortality is not affected by the question as to whether there is or is not a Cosmic space and time. Its argument for the existence of the Universal Mind does not depend upon a Cosmic space. Lacking such a space, we should fall back upon the fact, mentioned earlier in this Appendix, that each observer agrees that all observers travel one *interval* in the Minkowski diagram in one second of his own 'time 2'. Thus all are agreed about the lapse of a second of 'time 2'. A Cosmic 'time 2' is, therefore, assured. This means that all observers are positioned in the single, four-dimensional field of the Minkowski figure, while each remains within the required critical angle exemplified in Figure 12. Serialism does not contemplate, of course, the existence of any actual observer at a place which is at rest in the Cosmic space. But, far away along its wide front, the controversy has its echo. The absence of a Cosmic space would involve the Serialist in the necessity of considering 'souls clinging to bodies', and of wondering what happens to such tiresome objects

## THE 'MILLER' RESULTS

when they reach, in their travels, the place where those bodies terminate in 'time 1'. He would prefer vastly to be relieved of such a problem. Therefore he wishes all success and speedier recognition to the monumental work of Professor Dayton C. Miller.

## A NOTE ON 'TELEPATHY'

I can quote only two first-hand experiences of this. In the first, the 'recipient' saw in a dream something which I, but not she, saw a fortnight later. In the second, I dreamed of something which my sister had been reading four or five hours earlier. Obviously, no passage of an aetherial wave at the 'time 1' 'now' was involved in either instance. Consequently, I have held, always, that 'telepathy', like precognition, is a four-dimensional effect, and that it occurs between four-dimensional observers—the observers of the world-lines in  $A_2$ .

Let us, for simplicity, distinguish between the four-dimensional observer and his self by the use of the numerals 2 and 1. Suppose then that Jones 1 conveys knowledge telepathically to Smith 1. The sequence is as follows. Jones 1 at the travelling field affects Jones 2. Jones 2 affects Smith 2—anywhere in Smith 2's length, even behind Smith 1. But Smith 2 cannot alter his brain world-line except *via* Smith 1 at the

## A NOTE ON 'TELEPATHY'

travelling field. The forbidden miracle, therefore, does not occur: Smith 1 does not find his 'time 1' 'past' incomprehensibly altered. The only thing that happens is that he becomes possessed of knowledge without knowing how it reached him, knowledge which he, thereafter, can convey to the brain. Then, and not till then, does the entire procedure affect the substratum over which Jones 1 and Smith 1 are travelling.

The Serialist's prohibition of signals interfering with that part of any observer's world-line which lies behind the travelling field is Serialism's interpretation of the Relativistic prohibition of signals conveyed faster than light *via* the travelling field, or, as we should put it, the introduction of any world line in the Minkowski substratum sloping, in a square mesh system, at more than 45 degrees to the 'time 1' axis.













